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WHY IS THE STATE OF VIRGINIA INTERESTED IN MENTAL HYGIENE?*

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Census of Mental Patients: The increasing number of Virginia's citizens whose mental disorder or mental deficiency is marked enough to require institutional care constitutes one of the State's most difficult responsibilities, appealing to the highest sense of duty. Patients have been accumulating in hospitals over a long period of time, till on November 1, 1931, the number of mentally sick, mentally deficient and epileptic patients in the five State institutions, including those temporarily absent on visit home, was 10.742. The number under State hospital supervision in 1910 was 4,227, of whom, 387 were on furlough,—an increase of 6,515 in twenty-one years. On July 1932, the institutions were over-crowded with 8,054 patients and 2,557 on furlough, making a total of 10,611. Number of patients actually present in hospitals July 1, 1931, was 7,685, while on July 1, 1932, the number was 8,054, an increase of 369.

Cost of Mental Sickness: The expense for or incident to the care and treatment of patients in the State supported mental institutions for the fiscal year ending June 30, 1931, was two million dollars. Besides this amount, mainly for current maintenance, eight or ten millions of the State's money are tied up in real estate, structures and equipment,—non-tax producing, of course. The average annual per capita cost for maintaining the five State hospitals for the mentally disabled—adults and children—during the fiscal year beginning July 1, 1931, and ending June 30, 1932, was $170.60, which is quite reasonable.

Extra-Institutional Cases: "Aside from those who would be definitely labelled as mental cases, there are many whose minds have a moderate twist to half a turn" is the concise way in which Dr. Ray Lyman Wilbur, the distinguished guest speaker of the conference, describes a certain large class of extra-institutional persons who are constant sources of anxiety to the State as well as to their households and immediate communities. While not technically disordered in mind sufficiently to justify legal commitment, nor sufficiently delinquent to warrant arrest, their mental abnormality and lack of power of adjustment are such as to unfit them for productive or perhaps even peaceful citizenship and happy domestic and social relationships.

Closely allied to this class is another known as the defective-delinquent, in which there is admixture in the individual of traits of criminality and of defective, disordered mentality. In many of these anomalous individuals the abnormal and anti-social behavior occurs about the time of puberty, a period of more or less physiological strain, or somewhere during the period of adolescence. The nervous, emotional and psychic elements predominate in a large proportion of these derelicts and produce tendencies which may materialize into delinquency or actual crime. In the case of many of these criminaloids, as Biarchi calls them, their environment has been most unfavorable and their emotional control and standards of behavior have been neglected from early childhood. At any rate, many of them are so out of harmony with socially accepted behavior that they get an early start towards either the mental hospital or the penal institution. It has been said that a large proportion of adult crime grows out of failure to handle successfully and constructively the juvenile offenders, particularly those with defective mentality or psychotic trends. In the adolescent and the small number of children sent to the penitentiary, frequently abnormal mentality or a frank psychosis has been observed by the penitentiary psychiatrist and the Governor's Advisory Board on Mental Hygiene. Prevention and proper training had doubtless been neglected in childhood. To go further back, this situation is one of the ultimate effects of neglect or delay in

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dealing intelligently with children before any serious behavior problem has arisen. A distinguished English psychiatrist, Dr. Henderson, recently suggested the kindergarten age as a favorable time to apply mental hygiene.

Mental Disease Starting in Childhood is interesting in connection with mental hygiene. In a study of the causes of mental disorders in New York State, covering a period of several years, it was observed that temperamentally abnormal make-up was regarded as a factor in 57 per cent of the cases. Careful analysis of the social and clinical histories of patients admitted to the Virginia institutions would very probably reveal a similar situation. These observations would seem to bear out the opinion of Dr. William A. White that "most of the patients that come to the mental hospital are people who have been getting ill (mentally) for sometime,—twenty, thirty, forty years; they are end-products of long periods of increasing maladjustment due to personality make-up that started early in life." At any rate these thoughts emphasize the wisdom of beginning in childhood the prevention of mental disorders. Unfavorable heredity, physical disease and handicaps, unwholesome early environment and habits, neglect of appropriate educational, vocational and recreational training, and disturbed emotions are also causative factors of more or less significance.

The Feeble-minded: Throughout the Commonwealth, in homes of citizens of varying social, economic and intellectual levels are thousands of children and young people whose mentality so deviates from the accepted standards classed as normal that they constitute not only potential but actual social, educational, medical and economic problems that challenge the skill and ingenuity of the medical profession and the State. Not only the homes of the poor and degraded, but the homes of some of most cultured families are thus afflicted. Nevertheless, a very large number of these unfortunates have been left unprotected, untrained and, therefore, contribute to illiteracy, sex-immorality, poverty, delinquency and crime. These and deteriorating epileptics and dementia praecox constitute the gravest problems in the field of mental hygiene in childhood and youth.

State's Loss: As every delinquent citizen effects the social integrity and security of the State, so does every mentally afflicted citizen effect its intellectual force. The aggregated loss every year to the State and to individuals incident to mental disorders and deficiency of every type and their consequences in human suffering, failure, and anti-social behavior, is beyond estimation.

Childhood Is the Strategic Time to begin prevention of mental disorders. Following the advent about twenty years ago of the mental hygiene movement came special interest in the welfare of the child, its physical and mental and moral development, which has grown until it is today more in the minds of intelligent socially-minded people than any other thought relative to human welfare. It cannot be too forcibly said that students of mental health regard the early years of life as the fruitful time in which to apply methods of preventing mental disorders and laying the foundation for later adult mental health.

Separate Institutional Provision for psychotic children is a definite need. In the more than 2,500 hundred children and youths studied at the State Mental Hygiene Clinic, a considerable proportion showed such psychotic trends or were mentally disturbed to such an extent that they constituted special problems. The mental disturbance was in many instances the underlying cause, and certainly a contributing factor, in their anti-social behavior. The placement of a few patients of this class in a State hospital, as now organized, for special observation over a temporary period, has not, for obvious reasons, been altogether satisfactory, and the foster home usually available to the Department of Public Welfare has disadvantages in dealing with border-line mental cases. Virginia would take an advanced step in mental hygiene by providing special care for her children having mental disease.

Mental Hygiene Concerns Everybody: In consequence of the foregoing facts and many others that might be advanced relative to the relation of mental health to human happiness and success, one readily sees why every man, woman and child in the State and in the Nation should become deeply interested in mental hygiene. We are constantly being confronted with mental health problems, mental disorders and defects in our own families or our immediate circle of friends that bring to our thoughts, as expressed by Dr. Clarence M. Hincks, General Director, National Committee for Mental Hygiene, that "mental health of the entire population may well prove to be one of the most significant ventures in human welfare."

Suggested Mental Hygiene Program

In face of the situation in Virginia, I would suggest a future mental hygiene program as follows:

Continuation of efforts in informing the medical profession and the general public in the objectives of mental hygiene.

Extension of mental clinics, such as have already been successfully established, for both children and adults so as to embrace the entire State and to include out- and in-patients' clinics in connection with general hospitals.

Increase of trained personnel to investigate and remedy, as far as practicable, environmental conditions that are causative factors in mental disorders in children and juvenile delinquency.

Better preparation of medical students in mental hygiene and psychiatry; training of nurses and social workers for more efficient service with mental cases. Interneship in the State mental hospitals is especially advantageous.

Special institutional provision, preferably a separate institution, for study and treatment of children and youths with mental disorder, apart from adults.

Adequate and efficient institutional provision for the mentally sick and disabled, the feeble-minded and the epileptic to secure the earliest possible treatment.

Research in the causes and prevention of mental disorders, delinquency and crime in the State.

Eugenic sterilization continued on the basis of scientific study of heredity, and prognosis of mental disorders. Without serious delinquency an industrial school is made unnecessary.

Two or more psychiatric pavilions or centers for the diagnosis and treatment of incipient mental disorders are also needed. Their close association with medical schools would for obvious reasons be preferable.

Preparation of teachers in the principles and purposes of mental hygiene. Development of visiting teacher service throughout the State.

Adequate, properly supervised play-life for every child on the basis that there is no better promoter of normal physical and mental growth and of development of favorable personality nor surer deterrent of delinquency than constructive play.

Special training adapted to the retarded and problem school child.

Utilization of the services of specially qualified physicians and social workers in the investigation of the causes and prevention of crime.

Investigation before trial by competent psychiatrists and physicians of the mental status of every person indicted for felony or who is a recidivant and report of their findings given to the court.

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STATUS OF THE FEEBLE-MINDED AND EPILEPTIC IN VIRGINIA.*

J. H. BELL, M. D., Colony, Va.
Superintendent State Colony for Epileptics and Feeble-minded.

We breed from the best and the worst—some from the best, many from the worst—and indicate with pride our increasing population. We become involved in international conflicts embroiling the civilized races and send the best we have bred to feed the insatiable maw of the War God, and continue to breed some from what is left of the best and many from the worst. The evolutionary progress of the race is, therefore, a more tedious process than if the reverse of the above statement were true.

To one who has given a decade of study to both the theoretical and practical sides of human biology and genetics, prevention through control of potential transmitters of defects offers a more hopeful outlook than any other field of labor. Here in Virginia we are thought of as conservative in the adoption of highly theoretical ideas in public welfare and sociology, and I, for one, think this is as it should be. Better by far to proceed slowly and make fewer mistakes than to advance rapidly and have much to do over or eventually cast aside as impractical. Certainly it may be said of us now that we have a definite program, a definite objective, and the tools within our hands by means of which we may do much towards the reduction of the number of epileptics and defectives in our population: I refer to the process of eugenic sterilization provided for under the Virginia law, and I am pleased to be able to advise you that within the past four years, at one institution alone, we have been able to render procreatively harmless and release from institutional custody approximately 500 persons who were unques-

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tionably potential transmitters of defects to their offspring.

On several occasions in public addresses I have heard the perfectly innocuous word *sterilization* coupled with the word *mutilation*, referring to the procedure as *sterilization mutilation*, which I should say does give it a rather ominous and dreadful sort of meaning.

We find from the standard dictionaries that *mutilation* is defined as follows: "the act of deprivation of a limb or essential part, or the maiming or disfiguring of a person." I want to assure you that the individual subjected to eugenic sterilization is deprived of no limb or essential part, nor is the individual mutilated or disfigured, unless a small scar may be considered as mutilation, which can hardly be conceded in view of the vast number of our people who are daily having their cutaneous integrity violated for other purposes, and who, I believe, would strongly resent any suggestion that they are being mutilated.

I have rather an unwholesome dread of statistics, but am informed on excellent authority that there is 1 definitely feeble-minded person to every 200, and 1 confirmed epileptic to every 500 in the population of the United States, or a grand total of over 600,000 feeble-minded and 240,000 epileptics. Approximating the population of Virginia at 2,500,000, we would, therefore, have in this State about 12,500 mental deficients and 5,000 epileptics.

To cope with the situation we have at the State Colony for Epileptics and Feeble-minded, for whites only, approximately 1,000 beds, and at the Central State Hospital, at Petersburg, for colored epileptics and feeble-minded, approximately 340 beds.

It would appear, therefore, that we are much under a reasonable capacity for the effective handling of the problem, and my suggestion here would be that, instead of continuing to enlarge these institutions indefinitely, the State, when it is able to do so, create a separate institution for epileptics,—the problems of administration, research, and rehabilitation, being much complicated by the attempt to handle these two widely divergent types of cases in the same institution.

In recent years, we have been receiving at the State Colony for Epileptics and Feeble-minded a steadily increasing number of children from ten to sixteen years of age. Quite a few of these may be regarded as border-line or dull-normal, but with marked behavior difficulties which have rendered them more or less incorrigible in their homes and communities. There are several factors which may cooperate to bring about this situation: primarily, there is usually the common factor of heredity, and associated with this, a lack of judgment or understanding on the part of the parents, many of whom are also obviously defective or neurotic. The defective traits in the child which bring about the conflict receive strong parental emphasis, and, instead of having a tendency to be submerged by the many more normal trends, are exaggerated to the point where control is finally lost and the child must be institutionalized for its own welfare and that of the family.

I have seen many cases come to the institution with exaggerated complexes of various sorts and lose their peculiar sensitiveness, and become within their limitations more or less normal in their reactions and outlook upon life. I do not mean you shall infer from this that we can take a congenitally defective, subnormal person and make an average normal individual out of him. But within his circumscribed area of intelligence, his normal reactions may be increased and his abnormal or defective ones minimized.

I have been requested by Mr. H. M. McManaway, Chairman of the Committee on Special Education, to devote a part of my time to the discussion of the education of defectives. I am strongly of the opinion that dull-normals and border-lines, unless they are definitely psychopathic, should better be trained outside of institutional walls. I feel that each graded school should have as a part of its curriculum well-planned courses in manual training and domestic arts, with adequate equipment for instruction. Such training should proceed coincidentally with the literary studies and should have equal value and importance. As to the education of those who are frankly defective, I feel that their training should be largely manual. The industries for which the males are best fitted are agriculture, animal husbandry, rough carpentry, and mechanics' helpers; and the females may be successfully trained in domestic duties, and the simpler types of factory work.

The three R's should not be wholly neglected, and if they can be taught to read, write, and do simple sums, within a reasonable period of

time, they are entitled to this advantage. The manual side of their education, however, should be emphasized, as it is through the work of their hands, together with such native intelligence as they possess that they may ever hope to become self-supporting citizens.

In a less complicated civilization, it is conceivable that many of these persons would have perhaps been able to have gotten by, but at this time, without special training, their limited capabilities fall far short of adequately meeting their economic needs.

Those of you who have had experience in dealing with the so-called incorrigible defective realize the utter futility of ordinary disciplinary methods; the discipline of the wisest is often hopelessly inadequate and misunderstood. What can we do for this class of young boys and girls? Certainly their mental attitude must undergo a change before anything can be done. And even under the mildest sort of restriction this often seems most difficult. Occasionally one will change his mental outlook and demeanor almost spontaneously, but this more frequently is due to the clearing up of a mild psychotic condition over which we had but little if any control. Many are skillful with their hands, and many take a commendable interest in sorts of work for which they have a liking. If they could be employed on selected tasks, in pleasant, well-lighted factories, under mild supervision, and with as few restrictions as possible, do you not think it might help them to get more *en rapport* with Society? Certainly they are a disturbing factor in every institution, and their influence on the more social and benign types is destructive. No one wants to keep them. They are complained of at home and abroad. Perhaps they could do better segregated to themselves, with facilities for constructive work, amid pleasant and attractive surroundings, and with very simple disciplinary measures.

I have visualized a Colony of such adult persons, self-sustaining in all of its aspects, with family life—exclusive of offspring—and with limited self-government.

May I leave you with this idea, which may perhaps be more Utopian than practical; yet it is something to think about?

There are, in any well-organized and comprehensive plan for the control and limitation of defectives, seven lines of endeavor that we must think of as basic and elemental. They are as follows:

First, *identification* and *registration;* second, *institutionalization* or *community control;* third, *training* and *rehabilitation;* fourth, *eugenic sterilization* where the lines are defective; fifth, *parole* or *discharge*, with after-care where necessary; sixth, an adequate *follow-up system* to assist the patient in his readjustment to community life; seventh, *appropriate legislation* prohibiting marriage between feeble-minded, epileptic, or insane persons prior to eugenic sterilization.

Commendable progress has been made on some of the points in such a program as outlined. For instance, the Department of Public Welfare, through its Bureau of Mental Hygiene and its field workers, is doing much towards identification and registration; institutionalization is limited only by a lack of facilities, as there is always a waiting list of suitable and appropriate cases; intra- and extra-institutional training are hampered by lack of suitable equipment and training forces; eugenic sterilization is being carried on in the institutions as rapidly as is consistent with known facts in biology and eugenics; parole and discharge are being utilized extensively, but lack proper and adequate after-care; no very comprehensive or well-organized follow-up system, insofar as I know, is being carried out by the State Hospital system; the present marriage laws, while probably entirely appropriate for past generations and in keeping with the status of the social knowledge of their day, are totally inadequate to meet the present situation, and should be amended and so revised as to require a clean bill of health, both mental and physical, from the contracting parties—that is, they should be required to be free from the social diseases and be of approximately normal mental condition (not obviously insane, feeble-minded, or epileptic) prior to the issuance of a marriage license.

HOW PHYSICAL HANDICAPS PRODUCE MENTAL PROBLEMS.*

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The role that physical handicaps play in the production of mental problems is brought about in two ways, viz., the somatic disturbances themselves and the reaction to these physical disorders.

As an example of the latter phase of the problem is a very bright boy of seventeen years,

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who had a severe infantile paralysis when younger that left him partly disabled in his lower limbs. He cannot dance, he will not swim, he is unable to take part in any athletics and, as a consequence, he has developed an inferiority complex. He compensates by running away from home and indulging in frequent alcoholic excesses. In this connection I may mention any physical deformity, such as a prominent birth mark, as entering into the development of mental problems. Stuttering frequently is the basis for the beginning of a shut in personality in older children.

The alarming increase in head injuries caused chiefly from automobile accidents is already a serious situation to those who believe that physical disorders have a bearing on personality changes. A blow on the head sufficient to cause a fracture will, in all probability, produce a hemorrhagic encephalitis or other brain changes that later on will be a potential factor at least in the causation of conduct or other mental disorders. These children, in my own experience, are frequently nervous, have headache, are listless, and become problems in the direction of abnormal conduct. Proper treatment during the acute stage and for months afterward may alleviate, to a large extent, this factor. I would, therefore, urge all physicians who see these accidents, to consider each one as a serious condition, and to urge all parents of these children to obey their doctors' orders in detail, and especially to keep them quiet in bed for a sufficient length of time. If this is done, it is possible that many mental abnormalities will be prevented.

There are many toxic conditions and infections that heretofore have not been given sufficient thought as a factor in the production of mental changes. Cerebral accidents from paroxysms of coughing in whooping cough are not unknown. Bleeding within the cranial cavity in purpura hemorrhagica followed by epilepsy and general backwardness is a rare condition, but has occurred. Scarlet fever, and especially its bearing on middle ear affections with deafness, partial or complete, is important.

Tuberculosis, which frequently is not diagnosed, may be the cause of the child's sluggishness. I am told that the physical examination of a young child is not satisfactory, but a properly interpreted X-ray plate is most helpful in the diagnosis of tuberculosis. Intestinal parasites with the accompanying anemia are often found in school children who are backward but who have average intelligence quotients, and it is reasonable to suppose that these foreign hosts are concerned in their backwardness. Encephalitis from measles, lethargic encephalitis and severe cases of meningitis might well be mentioned in this connection. I understand from Dr. Beverley Tucker that juvenile diabetes has been an important factor in several of his cases. Syphilis *per se* is probably not so important a factor in causing mental deficiency as was thought at one time. Dayton reports only 5.4 per cent of mental deficiency from a total of 9,183 congenital syphilitics examined. But every physician sees children who are generally below par, underweight, backward mentally, and who are possibly showing abnormal mental reactions, but whose Wassermann tests are negative, although the parents are known syphilitics. I have had the feeling that syphilis was the basis for the mental abnormality, even in spite of the negative blood and spinal fluid Wassermann.

It is admitted by all that ductless glands have an important bearing on the general make-up of the individual. There is a great deal that is unknown, but rapid progress is being made and new facts are constantly being discovered. Cretinism has, of course, been known for years, but we see very few true cretins. There is a type of case, however, in which the child is restless, irritable, underweight and mentally backward which fits into the clinical diagnosis of a thyroid-parathyroid-calcium deficiency case. The basal metabolic rate, of course, is impossible at this age, but if one will X-ray the wrist joints, the development of the carpal bones gives very definite information of thyroid hypofunction. I have a number of these cases under my care and they all make definite and rather marked progress. There is unquestionably a distinct relation between the function of the pituitary and personality make-up of the individual, and possibly this gland has considerable to do with one's emotional life as well. In adults there are certainly pituitary types both of hyperfunction and hypofunction which can be seen almost at a glance, but in children these changes are not so plain, although they are recognized by one familiar with the picture. We have all seen the girl-boy and the boy-girl type. Many of these cases can be much benefited by early treatment, but if allowed to go on to various degrees of sex reversion, they make most unhappy citizens. I have under treatment at

present a large, obese woman of 30 years who has a heavy masculine voice, as well as a beard, and has to shave regularly. Some of these cases adjust themselves in various ways, but many of them live quite abnormal lives and are generally miserable.

Many children are laggards in their classes on account of errors of refraction and sometimes partial deafness. I have seen a few of these children who were thought to be mentally backward, but a careful refraction disclosed the fact that they were having marked difficulty with their eye-sight, and proper glasses enabled them to keep up with their classes.

There are some psychiatrists who definitely separate the mental from the physical. I am of the firm opinion that this cannot always be done, when we consider physical handicaps in connection with conduct disorders, personality changes and many other mental abnormalities.

503 *Medical Arts Building.*

THE VALUE OF THE EXTRACT OF WATERMELON SEED IN THE TREATMENT OF ARTERIAL HYPERTENSION.*

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Since the introduction of the extract of watermelon seed (cucurbita citrullus) by Barksdale,[1] in 1926, several reports have appeared in the literature on its value in the treatment of hypertension. As with the majority of therapeutic agents used in the treatment of this condition, no consistent results have been obtained from the use of cucurbocitrin, which is marketed under the trade name "citrin." Wilkinson[2] reported that fifty-six (82 per cent) of sixty-eight patients with hypertensive cardiovascular disease treated with citrin "showed a sufficient reduction of the arterial tension to be of clinical importance." Aulthausen and Kerr[3] found that in a series of forty cases, 73 per cent showed an appreciable reduction in the pressure, using as their criterion of successful treatment a reduction of 20 mm. or more of mercury in the systolic with a corresponding reduction in the diastolic. They stated that 82 per cent were partially or completely relieved of symptoms. Gargill and Rudy[4] found that 24 per cent of their series of twenty-nine patients showed a satisfactory reduction, 25 mm. in the systolic and 10 mm. in the diastolic. In a previous study[5] we found that citrin brought about a minimum reduction of 20/5 mm. in the pressure with alleviation of symptoms in 25 per cent of the cases.

Since a drug that is capable of decreasing arteriolar resistance is greatly needed in the treatment of many patients with hypertension, we felt that citrin should be given a more thorough trial; consequently, we have employed it in another series of patients. As in the previous study, no attempt was made to select cases other than to obtain those with permanently elevated blood pressures. This somewhat miscellaneous group consists of twenty-two patients, nearly all of whom were ambulatory. Thirteen of the patients were women and nine were men. Their ages ranged between twenty-three and eighty-two years; two were under forty; two were between forty and fifty; seven betwen fifty and sixty; eight between sixty and seventy, and one was eighty-two years of age.

A complete history was taken, and a general physical examination, including an examination of the ocular fundi, was made in each case. In addition, a study of renal function was made by means of the dilution and concentration tests, the phenolsulphonephthalein excretion test, and an estimation of the blood urea, although neither of the last two tests was made in two cases. Chemical and microscopic examinations of the urine were made in all cases. Electrocardiograms and teleoroentgenograms were made of those patients who were having symptoms and signs of disturbed cardiac function.

Nearly all of the patients had been treated at intervals previously for hypertension, either by a restricted diet, or by sedative and vasodilator drugs, although none of them had received any treatment for several months before taking citrin. Eighteen patients were under our observation for a period of time varying from five weeks to twelve months before beginning this treatment. Four cases (Nos. 7, 10, 13 and 20), referred by other physicians, were hospitalized for two or three weeks because their symptoms suggested severe disturbances in the cerebral circulation. These patients had been carefully studied by their physicians, who had recorded the blood pressure readings at intervals of ten to fourteen days at approximately the same time of day and after a period of rest of fifteen minutes. We accepted their measurements as control

*From the Medical Department of Lewis-Gale Hospital.

readings for these patients, and four days later we gave them citrin. They continued to take the drug after leaving the hospital, and it was through the courtesy of their physicians that we were able to follow them through their periods of treatment.

Blood pressure readings of these four patients were made daily before citrin was given, but in all other patients the readings were made at intervals of one week and as nearly on the same hour of the day as possible after the patient had rested comfortably for fifteen minutes with the sphygmomanometer (Baumanometer) applied to the arm. The third reading at each sitting was recorded and the average of these was considered the average blood pressure.

Another control procedure carried out in fourteen cases was the determination of the effect on the blood pressure of the inhalation of amyl nitrite, as suggested by Steiglitz.[6] No significant reduction was observed in the pressure of eight patients who were given this test. Two patients, one with fairly well advanced sclerosis in both the brachial and retinal arteries, and the other without any demonstrable sclerosis, exhibited a drop in the pressure to the normal, followed quickly by a rise to the initial level. Neither of these patients responded to citrin after taking it over a long period of time. The other four patients who responded to the test responded also to citrin.

The Period of Treatment

Citrin was administered orally in capsules containing 100 mgs. of the active principle, the glucoside. Eleven patients took 300 to 400 mgs. daily and twelve took larger doses, 600 to 800 mgs., daily throughout the greater part of the period of treatment. Blood pressure readings of twelve patients were made twenty-five, thirty-five and forty-five minutes after the first dose was taken. We also recorded the readings of these patients on five consecutive days after beginning the treatment. All other readings were made at intervals of one week, and notes were made of any change in symptoms.

Results of Citrin Therapy

No immediate reductions in the pressure were observed in any of the patients on whom readings were made after the first dose. Thus we did not confirm the observation of Aulthausen and Kerr[3] that "Following a single oral dose of cucurbocitrin there is usually in hypertension cases a fall of the systolic and diastolic pressure beginning about fifteen minutes after the administration of the drug."

Nine of the twenty-two patients showed a reduction of 30 mm. or more of mercury in the systolic pressure and 10 mm. or more in the diastolic after they had taken citrin over a long period of time. The greatest reduction in the systolic was noted in Cases 22 and 23, in whom a lowering of 40 mm. occurred, while the greatest reduction in the diastolic, 16 mm., occurred in Case 8.

Four of the patients, in whom a reduction of 30/10 mm. of mercury was observed, experienced complete relief from their symptoms. None of them, however, obtained much relief from symptoms until the maximum reduction had been observed in their blood pressure, usually two weeks or more after they began taking citrin. Of the remaining five patients who exhibited the same degree of reduction in pressure, two had no symptoms before taking citrin, and three had none that could be attributed to hypertension. Two patients whose pressures were not reduced reported relief from their symptoms. In the remaining cases the relief from symptoms was almost negligible.

The duration of the effect of citrin varied from three weeks to five months in nine patients. It lasted three weeks in four patients; from four to eight weeks in three; four months in one, and five months in another. The results of the treatment are shown in Table I.

Results of Subsequent Treatment with Citrin

Eighteen patients were subjected to periods of subsequent treatment with citrin particularly for the purpose of determining whether those who had previously responded might develop tolerance to it. Eight of the patients, who had been benefited by the drug, took it again when the effect of the previous treatment had disappeared, as evidenced by a rise in the blood pressure to the original level. The same dose, 100 mgs. three or four times a day, was again effective in reducing the pressure. It is interesting to note also that these patients, with one exception, responded a little more quickly to the second and third treatments, but the duration of the effect of subsequent treatments was the same as the first. Those patients who failed to respond to citrin the first time it was given showed no response later.

TABLE I

TABLE I

ANALYSIS OF TWENTY-TWO PATIENTS TREATED WITH CITRIN

Case	Sex	Age	Duration of hypertension as known by patients	Heart enlarged	Kidney function, impaired	Changes in large arteries.	Changes in retinal arteries	Period of observation before treatment with citrin	Effect of amyl nitrite on blood pressure	Average blood pressure before treatment with citrin	Average blood pressure after treatment	Reduction by citrin	Symptomatic relief	Daily dose of citrin, mgs.	Number of days of treatment	Duration of effect of citrin	Number of subsequent treatments	Effect of subsequent treatments
1	F	53	3 yrs.	Sl.	Normal for age	Sl.	Sl.	2½ mo.	Returned to normal	192/94	162/80	30/14	Complete	300 15 days 400 39 days	54	3 wks.	2	Satisfactory
2	M	57	3 yrs.	Mod.	Mod.	Mod.	Mod.	3 mo.	Returned to normal	188/110	174/105	14/5	Complete	600 40 days 800 14 days	54	0	3	Not any
3	F	55	8 yrs.	Sl.	Normal for age	Mod.	Mod.	4 mo.	Slight	188/110	176/108	12/2	Partial	600 40 days	40	0	3	Not any
4	M	61	1 yr.	Mod.	Mod.	Mod.	Sl.	3 mo.	.....	190/110	160/98	30/12	Complete	400 14 days 300 18 days 400 30 days	62	4 wks.	3	Satisfactory
5	F	51	10 yrs.	Mod.	No	No	Mod.	8 mo.	Slight	204/112	194/112	10/0	Not any	600 14 days 800 45 days	59	0	3	Not any
6	F	47	4 yrs.	Sl.	No	No	Sl.	2 mo.	Returned to normal	190/110	160/96	30/14	No symptoms	400	30	3 wks.	1	Satisfactory
7	M	57	4-5 yrs.	Marked	Mod.	Mod.	Marked	4 days	Slight	202/116	190/114	12/2	Not any	600 18 days 800 47 days	65	0	0	.....
8	M	73	2 yrs.	Mod.	Mod.	Mod.	Sl.	3 mo.	.....	194/96	160/80	34/16	Complete	400 14 days 300 20 days	34	2 mo.	2	Satisfactory
9	F	64	Unknown	Sl.	Mod.	Mod.	Mod.	3 mo.	.....	186/104	170/96	16/8	Not any	300 15 days 600 18 days	33	0	2	Not any
10	M	67	4 yrs.	Marked	Mod.	Mod.	Mod.	4 days	Slight	216/112	208/108	8/4	Not any	800	36	0	1	Not any
11	F	64	Unknown	Mod.	Normal for age	Sl.	Mod.	7 wks.	.....	190/106	180/102	10/4	Not any	600 14 days 800 10 days	24	0	0	.....

TABLE I—CONTINUED

Case	Sex	Age	Duration of hypertension as known by patients	Heart enlarged	Kidney function, impaired	Changes in large arteries.	Changes in retinal arteries	Period of observation before treatment with citrin	Effect of amyl nitrite on blood pressure	Average blood pressure before treatment with citrin	Average blood pressure after treatment	Reduction by citrin	Symptomatic relief	Daily dose of citrin, mgs.	Number of days of treatment	Duration of effect of citrin	Number of subsequent treatments	Effect of subsequent treatments
12	M	70	4 yrs.	Mod.	Mod.	Mod.	Mod.	4 days	.....	196/104	180/98	16/6	Not any	600	70	0	0	.....
13	F	63	12 yrs.	Mod.	Normal for age	Sl.	Mod.	2 mo.	Slight	210/110	196/110	14/0	Not any	600 20 days 800 40 days	60	0	1	Not any
14	F	54	5 yrs.	Sl.	Normal for age	Sl.	Sl.	10 mo.	Returned to normal	182/106	148/96	34/10	No symptoms	300	19	3 wks.	2	Satisfactory
15	F	23	Unknown	No	No	None	None	8 mo.	Returned to normal	144/94	114/82	30/12	No symptoms	300	21	6 wks.	2	Satisfactory
16	F	53	3 yrs.	Sl.	Normal for age	Sl.	Sl.	5 wks.	.....	188/102	150/90	38/12	No symptoms	400 14 days 300 7 days	21	3 wks.	2	Satisfactory
17	M	66	2½ yrs.	Mod.	Mod.	Mod.	Marked	5 wks.	Slight	206/114	198/112	8/2	Complete	600 14 days 800 30 days	44	0	1	Not any
18	M	64	10 yrs.	Mod.	Mod.	Mod.	Mod.	7 wks.	Slight	214/128	202/126	12/2	Not any	800 35 days 600 30 days	65	0	1	Not any
19	F	36	5 mo.	No	No	None	None	4 days	Returned to normal	174/104	168/102	6/2	Not any	600 21 days 800 28 days	49	0	1	Not any
20	F	49	1 yr.	Mod.	No	Sl.	Sl.	4 mo.	Sl.	180/100	168/96	12/4	Not any	400 14 days 600 21 days 800 21 days	56	0	1	Not any
*21	F	77	6 yrs.	Marked	Mod.	Marked	Mod.	1 yr.	.....	196/60	156/48	40/12	Complete	400	14	5 mo.	1	Satisfactory
*22	M	82	3 yrs.	Marked	Mod.	Marked	Mod.	1 yr.	.....	190/80	150/70	40/10	Partial	300	30	4 mo.	0	.....

*Included through the courtesy of Dr. R. L. Seward who made the observations in the same manner as they were made by myself in the other cases.

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These results of the treatment are shown also in Table I.

No untoward symptoms, either from a definite lowering of the blood pressure, or from toxic action of the drug, were observed in any of the patients. Frequent urinalyses revealed no evidences of renal irritation by the larger doses. It is interesting to note also that none of the patients developed signs of tolerance to the drug.

Discussion

A satisfactory reduction in the blood pressure occurred in nine of the twenty-two patients treated with citrin. Since one of the characteristic features of blood pressure, both in the normal and in the hypertensive individual, is its spontaneous variability, the question arises: What constitutes a satisfactory reduction?

The tendency to spontaneous changes of

TABLE II.

Variations in the Blood Pressure of Twenty-three Patients Treated with Citrin

CASE	Before Treatment				During Treatment				After Treatment			
	Maximum		Minimum		Maximum		Minimum		Maximum		Minimum	
	Syst.	Diast	Syst.	Diast	Syst.	Diast.	Syst.	Diast.	Syst.	Diast.	Syst.	Diast.
1	212	98	180	90	198	96	160	78	176	84	160	78
2	194	112	180	108	188	114	168	102	180	102	168	102
3	196	112	160	108	190	112	160	108	180	112	160	108
4	196	112	184	108	190	110	154	92	168	98	154	92
5	230	118	190	110	200	122	170	106	190	116	170	110
6	206	114	186	108	182	100	150	90	170	98	152	92
7	220	120	190	114	210	116	174	116	206	116	174	114
8	210	100	190	86	180	80	150	66	170	74	160	68
9	196	104	180	98	186	102	158	94	190	100	166	94
10	238	120	210	110	224	112	190	98	220	112	190	98
11	240	120	196	110	210	108	170	98	202	106	172	96
12	208	106	194	102	184	100	160	90	180	98	160	92
13	204	116	192	104	194	108	168	92	(died while on treatment)			
14	232	118	196	110	220	120	194	110	236	114	194	110
15	198	112	174	102	162	98	140	94	158	98	140	92
16	160	96	140	92	130	90	110	80	126	84	104	80
17	210	110	180	98	180	100	134	86	168	94	132	86
18	230	118	190	112	216	118	188	108	228	118	186	108
19	226	140	190	126	218	134	194	126	210	134	196	126
20	198	120	168	98	188	112	158	98	178	110	158	98
21	186	100	178	96	184	100	166	90	180	98	168	92
22	210	68	190	56	170	60	135	40	168	60	140	40
23	204	88	184	70	190	80	135	70	160	70	135	70

blood pressure in essential hypertension has been studied,[7, 8, 9] and noted as an early and characteristic feature of that affection.[10] Wood[11] has observed marked fluctuations in the blood pressures in hypertensive patients with and without renal impairment. Mosenthal and Short,[12] and also Sigler,[13] have shown that the tendency of the blood pressure to fluctuate is greater in hypertensive individuals than in those with normal pressure under the same conditions. The variations in the blood pressure of our patients (Table II) are as striking as those reported by the authors just mentioned. This tendency of the blood pressure to fluctuate must be borne in mind, and it requires conservatism in evaluating the results obtained from the use of any drug in the treatment of hypertension.

In appraising the value of citrin, we adopted the following criteria: (1) A careful study of each patient, which included a record of the variations in blood pressure; (2) A minimum reduction of 30 mm. of mercury in the systolic pressure and of 10 mm. in the diastolic; and (3) Definite symptomatic relief. We realize that variations of 30/10 mm. of mercury occur frequently in the blood pressure, and also that a reduction of that amount or more sometimes occurs spontaneously. We realize, too, that symptomatic relief may be due to other factors difficult to rule out. Still we feel that if a lowering of the pressure and relief from symptoms persist for an appreciable length of time after the use of the drug, they may be attributed to it.

Since it is known that the lowering of blood pressure may be influenced by the age and sex of the patient, the body weight, the duration of hypertension, the extent of arteriosclerosis, renal impairment, and the mental attitude, we have analyzed separately the bearing of each of these on the results obtained with citrin in this group of cases.

Age seems not to have had any bearing on the results. The average age of the patients who were benefited was 58.9 years, the same as the average age of those who were not benefited. It was the same also as the average age of the entire group of patients. Sex likewise had no appreciable influence on the results, either on the lowering of the pressure or relieving the symptoms.

We failed to find that body weight had any influence on the results obtained with citrin. The patients were weighed with their clothes and shoes on, and their normal weight calculated on the basis of age, sex and height, according to the tables given by Gray and Gray.[14] The difference in the weight of the patients in the two groups seemed insignificant, especially as 20 per cent above or below the average weight is regarded as a safe variation. The weight of two patients who responded was thirty and thirty-five pounds, respectively above the 20 per cent allowed them, while in the other group one was thirty pounds over-weight and one was twenty-eight pounds under-weight. The weight of each patient in this series remained constant during the periods of treatment.

Two factors of great importance affecting the outcome of citrin therapy, as that of any form of therapy in this condition, are the duration of hypertension and the extent of arteriolar sclerosis. The patients whose blood pressures were lowered gave a history of having had hypertension for seven years or less, the average duration being three and one-half years, while the average duration in the patients who were not benefited was a little more than six years. It may be stated also that the patients who responded to citrin had a mild or moderate degree of hypertension; the average systolic pressure scarcely exceeded 200 mm. of mercury, and the average diastolic did not exceed 110 mm. Moreover, one-half of these patients had hypertension chiefly of the systolic variety.

The amount of sclerosis and particularly its site influenced more than any other factor the results obtained in this series of cases. It is well known that when sclerosis has developed, it is usually found to be more extensive either in the large arteries or in the small ones, although sometimes it apparently involves both the large arteries and the small arteries to the same extent. It is well known, also, that when the sclerosis predominates in the large arteries the blood pressure, which is usually slightly or moderately elevated, is more readily lowered. The patients in whom a satisfactory lowering of the blood pressure occurred had sclerosis mainly in the large arteries, with relatively little involvement of the small ones as judged by the appearance of the retinal arteries. On the other hand, the patients who did not respond to the treatment had a greater amount of sclerosis in the retinal than in the palpable arteries, although one of these had

no demonstrable sclerosis in either the large or the small arteries.

Contrary to expectations, the impairment of renal function did not influence consistently the results obtained with citrin. Eleven patients had definite evidences of nephritis, as nocturia, low specific gravity of the urine, costs, diminished phenolsulphonephthalein excretion and increased blood urea. Citrin was effective in lowering the blood pressure in four of these patients, while in seven it was ineffective. Diminished variations in the specific gravity of the urine without other evidences of impaired renal function were observed in two patients who responded to the treatment, and in four whose blood pressures remain unchanged.

The mental attitude of the patients appeared to have little, if any, influence on the results obtained in this series. No significant reduction of the blood pressure was observed in any of those who did not respond, even when they knew they were taking a new drug. Two of those who responded worried to some extent about high blood pressure, and their systolic pressures were often 20 to 30 mm. higher when taken immediately after they entered the office than it was after resting fifteen minutes. In each instance, however, a satisfactory reduction of their blood pressures was accomplished by three different periods of treatment before they knew that they had taken a new drug. The other patients who responded were phlegmatic in temperament; they did not worry about high blood pressure, and they did not seem to be susceptible to suggestion.

Summary

1. Citrin given orally in doses of 100 mgs. three or four times daily caused a reduction of 30 mm. of mercury in the systolic pressure and 10 mm. in the diastolic in nine (41 per cent) of a group of twenty-two patients with hypertension. This effect was observed only in the patients with mild and moderate degrees of hypertension, and after they had taken the drug for a period of time varying from twelve days to two months.

2. Four of the patients whose blood pressures were lowered had symptoms that were attributed to hypertension. They obtained relief from their symptoms, but it was not complete until a minimum reduction in the blood pressure had occurred.

3. The duration of the effect of citrin varied from three weeks to five and one-half months in nine of these patients who continued under observation. When it became necessary to prescribe citrin again, the same doses were as effective as the first in reducing the blood pressure.

4. The age and sex of the patient, the body weight, the impairment of renal function, and the mental attitude of the patients seemed not to influence the results obtained with citrin in this group of patients. On the other hand, the duration of hypertension, and the site of sclerosis were important factors in the results obtained. No satisfactory reduction in the blood pressure was observed in those patients who had much sclerosis in the small arteries.

5. No toxic effects from citrin when taken over a prolonged period of time were observed. None of the patients in whom the drug acted favorably developed signs of tolerance to it.

We wish to express our thanks to the Table Rock Laboratories, Greenville, S. C., for supplying the drug for this study.

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DIETETICS IN DENTISTRY AND ITS RELATION TO MEDICINE.*

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I deem it not only a privilege and pleasure, but a distinct honor to be allowed a place on today's program. The impulse that prompts you to invite one from outside your particular field to participate in the discussion of a correlated subject is truly indicative of a broadening fraternalism, and the acknowledgment of that feeling of interdependence which I am sure, when properly shared, will promote the welfare of man.

For fear that the title of this paper may seem presumptuous to some, I wish it to be thoroughly understood that I am making no effort to step out of the field of dentistry and into that of medicine. Having been interested in dietetics for the past fifteen or more years I have during that time collected, from time to time, books, pamphlets, articles from journals and through observation, quite a bit of information bearing on this subject. Therefore, in this presentation I have merely tried to correlate many facts from the writings of a variety of investigators. In this paper I not only quote from numerous writers, but many times am using word for word as written by the author.

To stop to note references would take too much time, so I am just using the subject matter in the hope that it may prove at least interesting.

"The subject of food combinations is by no means a new one. The Jews, as well as many other of the early races, had formulated for them definite laws regarding the selection of food as well as restrictions concerning the eating of certain kinds of food with other varieties of nutriment. These laws were founded upon religious observances; the basis for these rules of eating must have been the fruit of the keen observation of priests and others of their kind entrusted more or less with the morals and the health of the community."

Says N. Philip Norman, M. D., in an article appearing in *International Clinics:*

"The more careful observer in the medical clinics of the large cities of America cannot fail to be impressed with the history of the immigrant Jew who, before migrating to this country and while living in strict accordance with the Kosher law, has been a rather healthy specimen; but when arriving in America and not observing so strictly the Kosher law, indulging himself in the many varieties of processed food that almost seem to be the pride of America, he shortly develops digestive disorders that the gastro-enterologist is called upon to correct. This is also true of other races, as the Italian and the Irish, whose native fare differs widely from that consumed in this country."

Within recent years the question of food combinations has been advanced by lay writers and a few physicians. Their reasons apparently were founded upon theory, observation and fad. While they contain a lot of truth, at the same time there was not a scientific foundation for constricting the combining of certain foods with other foods, and for this reason these ideas have never gained popular favor amongst the medical profession.

Many years ago, the subject of nutrition suffered perhaps its severest blow when the balanced meal was conceived. From what was known at that time, it was concluded that the three essentials for every meal were a carbohydrate, a protein, and a fat. Further observation and some research finally proved that in addition to these three elements, a fourth factor was needed,—that fourth factor being the mineral element. We are indebted to this conception for the present-day system of eating in which we consume three meals a day, made up mostly of fats, proteins, and carbohydrates. The mineral constituents of the meal of today are very seriously impaired by the processing or refining to which a great part of our food is now subjected in the course of manufacture.

In recent years, the necessity of the so-called food factors has come to the fore, and it is strange that we have been blind for so long a time to their need and to their value as part of the nutritional scheme. Several years ago, Funk brought out the vitamin theory, and medicine, with its traditional conservativeness, delayed the recognition of this important discovery for too many years. Today, while we do not positively know what vitamins are, at least we are beginning to admit that their pres-

*Read before the Southside Virginia Medical Association at Petersburg, Va., March 8, 1932.

ence is not only desirable but necessary for proper nutrition. Fortunately for the public, most of the work that has been done on nutrition has been done by non-medical rather than medical men, and for this reason an avenue for publicity has been given to which the conservative medical man never would have consented. This, however, has possibly warped the ideas of the lay public concerning nutrition, because fantastic theorists have tried to foster the popular idea that at some day in the future we would be able to "can" nutrition, even put it up in capsules, so that we would not have to be bothered any longer with the necessity of eating.

The medicine of the future is going to be concerned primarily with the nutrition of the individual; not after he has developed disease, but before he is born. Upon proper nutrition of the present-day generation depends the constitutional integrity of the generation of tomorrow. And when we, as teachers of the community, will educate our patients to the need of abolishing and preventing from being manufactured and sold such products as candy, cake, pastries, breakfast cereals, polished rice, refined sugar, bolted flour, canned meats, etc., in the same manner in which we have taught them the necessity of quarantine in a communicable disease and the necessity for clean teeth in regard to systemic disease, then we will have accomplished the master-stroke of preventive medicine. But so long as we assume a derisive attitude towards it and hide behind the blanket phrase, "Oh, the human race is adapting itself to these new food substitutions," which is just a blanket to cloak our prejudice, our ignorance, and our indifference to the progress of the most vital therapeutic aid to medicine, then so long will we have to admit our failure in decreasing the amount of chronic diseases that are steadily increasing despite our better knowledge concerning their detection and treatment. Statistics from well-organized institutions are proving to us each day that chronic degenerative types of diseases are increasing and so many of us sit idly back and explain the whole thing is due to the stress and strain of modern life. The strain and stress of life is less today than it has ever been in the history of the world. We have more money, more conveniences, more devices for making life easy than ever before. And there is no class or set of living things in the world today that has made its adjustments to its environment as well as civilized peoples, and this is especially true of Americans.

Fundamentals for Planning Meals

Recent researches have shown that the acid-forming foods, contrary to prevalent conception, are the meats, starches (except the white potato), prunes, plums, cranberries and rhubarb. The alkali or neutralizing types of foods are raw fruits, raw and cooked non-starchy vegetables and milk. The neutral foods are fats and sugars; yet these, while neutral, may intensify the acid-forming properties of the acid-forming foods. Therefore, we offset the acid-forming foods with a sufficient quantity of alkali-forming foods.

Pavlov has conclusively demonstrated through the most carefully controlled animal experimentation that each kind of food provokes a specific, definite, and purposive type of gastric and intestinal secretion. We will consider the carbohydrates first. Of course, as we all know, the first digestion of carbohydrates begins in the mouth when the saliva hydrolizes the starch, thus preparing it for gastric digestion. After reaching the stomach there is a five-minute delay; at the end of which time the outpouring of the gastric juice begins. The character of the gastric secretion concerned in the digestion of carbohydrates is definite as to quantity, quality, and the rate of secretion. We find that the secretion is slowly poured out, does not reach its maximum until the end of the second hour; that it is rich in ferment and weak in acid. The amount is not very great, yet the secretion is distributed over a long time. One may infer from this observation that it is only the ferment of the gastric juice that is here in great requisition, and that large quantities of hydrochloric acid would be useless or possibly injurious. Consequently, in the digestion of bread, but little hydrochloric acid is present in the stomach during the period of secretion. From clinical observation, we know that in the case of hyperacidity a large part of the carbohydrates escapes unusued from the gastro-intestinal canal, while the meat constituent of the fare is excellently digested.

On the other hand, in considering the digestion of meats, the secretion response varies widely from that provoked by carbohydrates. They provoke a very definite secretion response on the part of the gastric glands. There is a

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rapid outpouring of gastric secretion which reaches the maximal limits of outflow within the first hour of gastric digestion. This juice is rich in acid and moderately so in ferment. The reason for this is because of the chemical nature and the fibrous structure of meats. On the other hand, such proteins as are contained in milk, cheese, legumes, nuts and eggs provoke a different type of gastric secretion from that provoked by meats. This is so because of the fat which some of these proteins, as milk, nuts, cheese and eggs, naturally contain. It is a significant fact to my mind that nowhere in nature can we find combined a concentrated starch and a concentrated complete protein, and there are no exceptions, not even including milk. This fact suggests that concentrated starches and concentrated complete proteins are never to be combined in one's dietary.

Fat is the next food to be considered, and its effect upon gastric secretion is very interesting. A fat introduced before, during or after a meal will exert an inhibitory influence over the gastric secretion for from one to two hours. At the end of this inhibitory period, there is a sudden and rapid response on the part of the gastric glands to the contained food. This explains why meats cooked in lard or eaten with an excess amount of butter or combined with milk, or fatty gravies produce hyperacidity.

These and other physiological fundamentals are the condensation of facts which Pavlov has proven. With these in mind, we formulate three definite laws regarding the planning of meals:

First, concentrated carbohydrates are not to be combined with concentrated proteins.

Second, concentrated fats should never be combined with concentrated proteins.

Third, fruits, raw or cooked, should never be combined with concentrated carbohydrates.

The last law regarding the combination of fruit and starch is based upon the fact that the digestion of starch is primarily a reduction process and this must take place in an alkaline or neutral medium. The acid contained in the fruit prevents the proper hydrolization of the starch and in this way delays its digestion.

General Principles

1. Every essential food factor necessary for proper nutrition must be incorporated in the menus of each meal, without combining the three concentrated foods, which are the fats, proteins, and carbohydrates (starch and sugars).

2. The prevailing practice of combining the three concentrated foods at the same meal tends to wear out the digestive glands in the course of time and impairs their function. The combination of concentrated fats, proteins and carbohydrates requires a large amount of digestive juices for digestion, because they constitute a digestive mixture so complex in nature that the digestive glands are taxed to their physiological limit in responding to the various stimuli, which these various foods provoke.

The character of digestive juices which are necessary to properly digest these three concentrated foods varies widely one from the other, and each type of food requires its specific juice. Because of the presence of the three concentrated foods which thus call for antagonistic chemical processes at the same time, it is a physical and chemical impossibility for the digestive glands to function properly as they are subject to definite physiological laws.

3. Manufactured foods, such as sugar, breakfast cereals and other foodstuffs made from bolted (white) flour, are excluded, as far as is practically possible, from the menus.

4. Rules to be followed:

(a) Do not combine concentrated starches and concentrated proteins.

(b) Do not combine concentrated starches and fruits.

(c) Do not combine concentrated fats with concentrated proteins.

There are five digestive fluids: The saliva, gastric juice, pancreatic juice, the bile and the intestinal juice, all of which must be taken into account.

In passing, I pause to comment on the pancreatic juice which is poured out through the tube into the duodenum from the pancreas. It completes the digestion of the starchy foods, which have entered the intestines in the form of maltose, by changing it to glucose. But when this juice does not receive the mineral salts from the pancreas, the glucose passes into the blood, and the kidneys try to eliminate it; thus we find sugar in the urine, or diabetes.

Dr. McCollum states: "All pyorrhea cases are potential cases for diabetes."

On the back of the tongue are eight or ten elevations arranged in a V-shape, around which

are the taste-buds. These are the ends of the nerves of taste, and are responsible for what we swallow.

Sweets are tasted on the tip of the tongue, acids on the sides, and bitter things at its base. Many flavors we do not taste, but smell. In experiments made by Professor Pavlov, he found that where foods were placed through an artificial opening in a dog's stomach while the animal slept, very little gastric juice flowed for several hours; but meat placed where the dog could see it cut up ready for him, the gastric juice flowed copiously in a very few minutes. Thus the digestion is usually improved by placing all of the meal on the table, instead of serving it in courses. It was also proved by him that the nerves of taste call for a definite flow of several digestive juices according to the class of the food tasted. He made a hospital for dogs so sanitary that pus infection would not take place, as he made incisions in a number of the dog's stomachs. Half of them had their gullets cut so that the food did not go into the stomach, yet he found that the same juices were in the stomachs where no food had gone, having only been tasted, then emptied on the floor through the incision.

It is very important that food be pleasing to the eye as well as to the taste. The sight of a savory dish stimulates the flow of the digestive juices for that kind of food. All fluids taken with the food at mealtime, have to be absorbed before digestion begins. Tea, coffee, chocolate and water do not digest food, but they do dilute the digestive juices, leaving them chemically weak to digest food. At meals a liquid should only be taken when the mouth is empty.

From six to eight glasses of water or unsweetened fruit juices should be taken between meals. "If a glass of water is taken at least one-half hour before the meal, and the food is well masticated, the desire for liquid will not be so great at mealtime."

In the field of dentistry we have many investigators, one of the more prominent being Dr. Percy Howe, of Boston, Director of the Research Laboratories of both Harvard University and Forsyth Dental Infirmary, and Dr. Weston A. Price, D. D. S., M. S., F. A. C. D., of Cleveland, and Director of the Research Institute of the American Dental Association.

The Forsyth Infirmary has a million dollar plant and three millions in endowment. Dr. Howe has done nothing but research since 1900, and his work has been largely in the field of physiology, dealing mostly with vitamin C. The monkey has been his main subject for experimentation. He has found that the monkey in his natural state is devoid of dental decay, but when at first he fed his monkeys the usual diet of grains and nuts they soon became subject to many degenerative diseases. Heart, kidney and blood vessel involvements, arthritis and the serious non-development of the bony frame and skull predominated. Dental decay could be induced in seventeen days when the animal was put on a vitamin C deficiency diet, which condition was arrested in ten days when a vitamin C efficiency diet was emphasized, the cavities remaining stationary without dental interference. Some of his experiments are as remarkable as interesting, such as destroying the dental pulp through feeding and the producing of pyorrhea.

The research of Dr. Price has been mostly in the field of body calcium.

The hardening of bones and teeth requires the salts, calcium, magnesium and phosphorus. Silicon is found combined with fluorine in the enamel of teeth. The lack of fluorid of calcium in our food causes a premature decay of the teeth.

Teeth are living parts of the living body; they sicken with the body and get well when the body gets well.

I quote from Dr. Price as follows:

"The emphasis in preventive medicine is passing from repair to prevention and the next great forward movement in dental science will doubtless be effective preventive procedure combined with much more effective treatment. My studies on the relation of dental disease to systemic health, together with the relation of general health to dental disease, have continually led in the direction of the obtaining of much additional knowledge regarding the processes by which the hard structures of the body are built up and taken down in health and disease, and on the role of calcium in determining the functional level of all organs and tissues.

"The data which I have presented indicates that individuals can be classified into groups on the basis of the manner in which they metabolize or utilize calcium, and this is borne out and greatly re-enforced by the continually accumulating data. Many systemic diseases are associated with extensive decalcification proc-

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esses in their later stages and some in their early stages. This condition obtains in a striking manner in diabetes, tuberculosis and cancer, the individuals of which groups tend to be free from arthritic processes and quite uniformly free from the proliferative type of arthritis."

Again, he says: "The maintenance of normal defense or immunity requires calcium and phosphorus, in adequate amounts, available in the blood stream quite as much as for the repair of bone, and our entire scheme of preventive dentistry will in my judgment be built upon this foundation. We are therefore going to come to the preparation of the patients for operation, when operations are necessary, by giving then this type of re-enforcement during the time they are making this repair. Further, it is not too much to expect that we shall come to a type of dental practice which will prevent quite as effectively dental caries and pyorrhea and other decalcification processes, and these are quite dissimilar, as we may aid, as I have demonstrated is now possible, in the process of repair of ununited fractures."

I interpret these data as follows: Since a minimum amount of calcium and phosphorus is essential for daily needs in health and a greater amount is required in disease, if the required quantities cannot be supplied from the food, whether for lack of calcium and phosphorus in the food or from lack of activators to make them available, a draft will be made on the storage in the skeleton. This produces a state of stress which disturbs function until that stress is removed by the replacement in the bones of the borrowed calcium and phosphorus.

This condition constitutes an important factor in the development of the so-called degenerative diseases both by disturbing organ function and by lessening the body's capacity to fight infection; hence, there is a reduction in immunity.

"With lowered resistance to infection, local quarantines break down, such as those about infected pulpless teeth, which now become a liability. Such an individual is in negative calcium balance while using calcium faster than he is assimilating it. This condition constitutes a very common and important factor in the expressions of age, whether in early, middle or old age. Such individuals, for the time being, may be said to be dying, or, as someone has expressed it, people do not die from degenerative diseases,—rather they get the degenerative diseases because they are dying. In this state, focal infections, dental or otherwise, may provide a strain of infection with localizing qualities which will, by this tissue affinity, rapidly or slowly break down some organ, and, at the same time, injure the defensive mechanism by the systemic calcium stress. Hence, focal infections should be eliminated before the capacity for maintaining immunity is lost. An infected tooth would require very great strategic value to offset this capacity to do harm. Under nearly all circumstances, therefore, infected pulpless teeth should be removed before the systemic state of lowered resistance develops."

Still quoting Dr. Price: "The colds that many people have, I think, are largely due to the low vitamin content in the foods. Milk and butter are really the chief source of vitamins A and D. Activation of a cod liver oil that is low in suitable provitamins will not improve it. It will do some harm probably, and I would advise against doing it. I do not know where you can get cod liver oil that is always high in vitamin D, because the manufacturers are not yet, as far as I know, putting figures for vitamin D on the bottles except to say that not less than a certain minimum is contained. To state that the contents contain an ample quantity may be enough on the basis of the chicken or rat experiments, although as you see by the evidence here presented it is not nearly so good as that that is high. I think that ultimately the cod liver oil manufacturers and supply depots will furnish cod liver oils with figures for both A and D vitamins. For the present, I know of no better way than to take it myself or to make one or all chemical analyses a biologic test on animals or a spectrographic test. Emulsions are generally low in vitamin D."

Dr. Price has had some wonderful success with long standing unhealed fractures by making blood examinations, finding which mineral was lacking and then feeding in capsules with meals, the necessary element producing unbelievable results. He has also made a graft by using the reports of the U. S. Department of Health over a period of twenty-five years, showing that arrested child developments, hospitalization and death increased from December on up to the middle of Febru-

ary and then declined to a normal level in June or July. He attributed this to the lack of green vegetables and fruits during the winter months, thus depriving the individual of the needed mineral salts. Various systemic diseases make it impractical to apply these principles for dental betterment, and I am always careful to consult the patient's physician in cases of diabetes, heart and blood vessel impairment and interstitial nephritis or when I know the patient to be receiving medical care.

In dental practice I find the greater need of applying dietetics in the handling of so-called pyorrhea, which is not a disease in that there is no specific bacterium to which we can ascribe its inception,—but rather is it a physiological condition brought about by a disturbance of the circulation and nutrition in the supporting tissues of the teeth. Infection and pus are secondary in importance. There is no great trouble in elimination of pus and infection, but the stubborn case is the one where there is a constant absorption of bone through faulty calcium metabolism.

Then dietetics and dietetics alone can help solve your problem. To show how I attempt to make some practical application of this I will now show a few slides.

In trying to make a practical application of dietetics in my practice, my efforts are largely confined to those patients who have unusual evidence of periodontal trouble and whose teeth fall an easy prey to dental caries. My first approach is to present in a brief way the importance of food values as outlined above; then, if the patient shows interest, and after additional instruction, I request that they keep for me a list of the foods eaten for five or six days. Quantities are given in tablespoonsful, cups or glasses, slices of bread, or number of rolls or biscuits, etc. This is gone over at my leisure and then taken up with the patient with explanation of its meaning. While I am doing this, I have them read Percy Howe's Letters and The Food Pilot by Dr. Sheridan C. Waite, published by The Food Pilot Co., Springville, N. Y.

The first slide is of a man 48 years old, a prosperous farmer who brings his truck to town along with milk and butter. Although he raised the green vegetables, you will see from his list that he has not eaten a single uncooked food in this whole time. Upon questioning him about the milk, he said it was skimmed milk from which cream had been taken for sale. Though he said he felt very

SLIDE No. 1

Saturday, February 8, 1930

Breakfast	*Lunch*	*Dinner*
5 Biscuits	3 Potatoes	5 Biscuits
2 Oz. meat	4 Glasses milk	1 Oz. meat
2 Cups postum	2 Oz. meat	1 Cup postum
5 Biscuits	1 Chicken leg	Meat
2 Eggs	5 Biscuits	Evaporated peaches
2 Cups postum	2 Spoonsful tomatoes	Crackers and relish
	1 Saucer canned peaches	2 Slices cake
	1 Cup coffee	1 Saucer jelly
		1 Cup coffee
	4 Biscuits	Macaroni and cheese
4 Biscuits	Beans	Tomatoes
2 Eggs	4 Glasses milk	4 Biscuits and butter
1 Cup postum	Dressed potatoes	Saucer peaches
		Cake
		1 Cup coffee
Salmon and cheese	2 Slices meat	Beans and tomatoes
4 Biscuits and butter	2 Biscuits	4 Biscuits
1 Cup coffee		2 Cups postum
4 Biscuits	5 Biscuits	Bread
1 Egg	Dressed sweet potatoes	Vegetable soup
2 Cups postum	Vegetable soup	Syrup
	Milk	Postum
3 Biscuits	Kale salad and Irish potatoes	Salad
1 Egg	Cornbread	Potatoes
1 Saucer puffed rice	Chocolate pudding and cream	Butter
Milk	4 Glasses sweet milk	Bread
1 Cup postum		Postum

SLIDE No. 2

Friday, February 21, 1930

Breakfast	*Lunch*	*Dinner*
One-half grapefruit 2 Toasted rolls 1 Soft egg	Chicken Rice Cabbage Cornbread	2 Lamb chops 1 Whole wheat biscuit
Orange juice Soft egg 2 Spoonsful wheatina	Chicken Baked potatoes String beans (one helping)	1 Egg 2 Whole wheat biscuits 2 Slices canned peaches
Orange juice 2 Whole wheat biscuits 1 Egg	Chicken String beans Slaw Orange custard	Tomato jelly salad Lemon ice cream Crab flakes
Orange juice (glass) 2 Whole wheat biscuits 1 Egg	Asparagus soup Turkey Peas, Irish potatoes Slaw	2 Oranges
Grapefruit 1 Egg 1 Whole wheat biscuit	2 Lamb chops Turnip salad Irish potatoes Prunes	1 Egg Whole wheat bread Slaw
Orange juice 1 Egg Whole wheat bread	Fish Asparagus Turnip salad Cornbread Apple sauce	Beef stew Slaw Prune jelly
Orange juice Shad roe 1 whole wheat biscuit	Tomato soup Chicken and Gravy Asparagus Baked potatoes Ice cream and cake	Cold chicken Whole wheat bread Potato
Grapefruit 1 Egg 1 Whole wheat biscuit	Chicken hash White bread Peaches	Chicken hash White bread Peaches

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SLIDE No. 3

Tuesday, February 20, 1930

Breakfast	*Lunch*	*Dinner*
3 Tbspnsfl. stewed figs 2 Slices toast (wheat bread) 2 Soft boiled eggs 1 Cup postum	Cream tomato soup (20 tbspnsfl.) 3 Soda crackers 2 Pimento cheese sandwiches 1 Orange 4 Graham crackers 2 Home-made cookies 2 Cups postum	Liver and bacon Baked potatoes 2 Bran muffins 1 Banana with mayonnaise 1 Cup tea
1 Orange 2 Fried eggs 2 corn meal cakes 1 Cup postum	1 Bowl cream of pea soup 4 Soda crackers 1 Minced ham sandwich 1 Bran muffin with dates Lettuce, one-half head, with Wesson oil	Fish 1 Boiled potato Stewed peas (4 tbspnsfl.) 1½ Bran muffin Cabbage (raw, with mayonnaise) (4 tbspnsfl.) 2 Cups tea
Sliced orange 2 Poached eggs Whole wheat toast 1 Spoonful stewed figs Postum	Vegetable soup (20 tbspnsfl.) 1 Sardine sandwich (W. W. B.) 4 Spoonsful potato salad Dates Postum	Baked ham Sweet potatoes Banana salad Apple pudding with milk Whole wheat bread Tea
Stewed figs Whole wheat toast 2 Soft boiled eggs Postum	Roast lamb with dressing Cream potatoes (3 tbspnsfl.) Peas and carrots (3 tbspnsfl.) Apple celery salad (3 tbspnsfl.) Peaches	Roast lamb with dressing Cream potatoes (3 tbspnsfl.) Peas and carrots (3 tbspnsfl.) Peaches

well and had not had a physician attend him in ten years, I finally persuaded him to have a thorough physical examination. I called the physician he selected and told him that this man had come to me for treatment of a bad case of pyorrhea and from the oral evidence I suspected hardened arteries and kidney involvement. The examination showed arteriosclerosis, with a blood pressure of 240, and the urine loaded with albumin. Yet, with this warning, this patient has not returned either to the physician or to me for further treatment in two years.

The second slide is from a list furnished by a lady who was able to buy just about what she wanted. Her dietary seems wholesome and nourishing, but upon examination we find faulty food combinations running all through,

SLIDE No. 4

Sunday, February 2, 1930

Breakfast	*Lunch*	*Dinner*
1 Orange	1 Bowl vegetable soup	1 Tbspnfl. tomatoes
1 Egg	Small piece of meat	1 Tbspnfl. cream potatoes
2 Slices toast	1 Slice bread	Small piece of meat
2 Cups tea	Celery and mayonnaise	1 slice cake
		1 Cup tea
2 Slices toast		Small piece of meat
1 Cup postum		1 Cup postum
		1 Roll
		1 Tbspnfl. Chili sauce
Small piece meat	2 Cup cakes	1 Tbspnfl. potatoes
1 Cup postum		Small piece of meat
1 Slice bread		1 Slice of bread
1 Muffin		1 Cup coffee
1 Orange	1 Slice cake	1 Bowl soup
2 slices toast	1 Sandwich	1 Slice bread
1 cup tea		
1 Bowl oatmeal		1 Tbspnfl. salad
1 Cup coffee		1 Tbspnfl. potatoes
		Small piece of meat
1 Bowl oatmeal	1 Sandwich	1 Cup tea
1 Orange		1 Bowl bean soup
1 Cup tea		

SLIDE No. 5

FOOD LISTS

Acid Forming	*Alkaline Forming*		*Neutral Foods*	*Phosphorus Rich Foods*
Bread (w. w.*)	Apples	Kale	Butter	Almonds
Beans*	Apricots	Kohlrabi	Buttermilk	Walnuts
Cereals	Artichokes	Lemons	Bacon	Pecans
Chestnuts	Asparagus	Limes	Cream	Fish
Cheese (hard)*	Bananas (ripe)	Melons	Corn oil	Shrimp
Clams*	Berries	Oranges	Cottonseed oil	Lima beans
Crabs*	Beets and tops	Olives	Egg yolk	Lentils
Cranberries	Brussels sprouts	Onions	Fat of meat	Eggs (raw best)
Dried peas*	Cherries	Oyster plant	Lard	Raisins
Fish**	Citron	Persimmon	Olive oil	Also other foods in other columns marked *
Game	Currants	Pineapple	Peanut oil	
Lobster**	Cabbage	Parsnip		
Legumes*	Carrots	Parsley		
Meats	Cauliflower	Peppers		
Nuts*	Celery	Quince		
Oysters*	Celery root	Radishes		
Prunes	Chard	Raisins*		
Plums	Cucumbers	Sauerkraut		
Peanuts*	Dates	Spinach		
Poultry	Dandelions	String beans		
Rice	Endive	Tomatoes		
Rhubarb	Figs*	Turnips and tops		
Scallops	Grapefruit	Tangerines		
Shrimp**	Grapes*	Water cress		
Squash	Kumquat	Vegetable marrow		
White of eggs		Vegetable oysters		

Those with 2 stars (**) are rich in phosphorus.

To acquire body alkalinity and overcome too much acids in urinary tract and blood stream, eat *four* alkaline foods to one that is acid forming. To retain alkalinity of the system once established, from *two* to *three* alkaline foods to *one* acid making food should constitute each meal. In cases of hyperacidity or in any ulcerations of the alimentary tract, a food list should be prepared by a competent physician.

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SLIDE No. 6

SUITING YOUR FOOD TO YOUR NEEDS

Fattening Foods	*Normalizing Health Foods*	*Reducing Foods*
Sugar	Whole wheat flour	Bran products
White flour	Whole wheat bread	Bran bread
Bread	Pumpernickel bread	Bran cereals
Pastries	Whole corn bread	Thin soup
Pancakes	W. W. cereals	Lettuce
Puddings	Brown rice	Celery
Oatmeal	All dried fruits	Cabbage
Cornmeal	All fresh fruits	Tomatoes
Corn	All salad vegetables	Spinach, etc.
Cream of wheat	Baked potatoes	Buttermilk (genuine)
Rice	Cooked vegetables	Cottage cheese
Chestnuts	Coddled eggs	Beans
Peanuts	Raw egg shakes	Peas
Peanut butter	Creamed eggs	Lentils
Pecans	Cream	Egg whites
Brazil nuts, etc.	Sweet butter	Mineral oil for salads
Raisins	Buttermilk	Cereal coffee
Dates	Milk cocoa	Acidulous fruits
Figs	Cereal coffee	Lean meat
Prunes	Malted milk	Coffee
Bananas	Grape juice	
Butter	Apple juice	
Cream	Brown sugar (old fashioned)	
Egg yolk	Maple sugar	
Cream cheese	Honey	
Rich milk	Maple syrup	
Malted milk	Roasted meat	
Ice cream	Broiled fowl	
Fat meats	Stewed fish	
Thick greasy soup	Gelatine	
Thick gravy	All nuts	
Oils and shortenings	Scotch oats	
Turnips	Unbolted cornmeal	
Squash		
Pumpkin		
Potatoes		

BE WISE—EAT RIGHT—STAY YOUNG

especially for lunch on seventh day where we find starch, sugar, protein and fats all combined.

Slide No. 3 is from the list of a skilled mechanic. Though variety and food value are both good, yet you will notice that there is present in most of the meals faulty combinations. This patient was suffering from pyorrhea and acid erosion of the necks of the teeth.

Slide No. 4 is from the list of a school girl, 15 years old, with unusual amount of tartar deposit on the teeth and somewhat inflamed gingiva. The amount of food is so small that she could hardly have faulty combinations but an acid end ash was always maintained through this poor diet. Just imagine a 15 year old girl trying to go through school and maintain proper growth and health on so little food.

Slides 5 and 6 are lists furnished patients that they might be able to have a large selection of foods, hoping that they could find enough of what they liked in order that the effort to balance their dietary would not be burdensome.

In closing, I would like again to emphasize that my main objective is to make these people food conscious and thereby do a little missionary work for the betterment of mankind.

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Medical Arts Building.

THE MECHANISM, DIAGNOSIS, AND MANAGEMENT OF OCCIPITO-POSTERIOR POSITIONS OF THE VERTEX.*

ROBERT A. ROSS, M. D., F. A. C. S., Durham, N. C.

The fact that occipito-posterior presentation constitutes one of the major problems in obstetrics is justification enough for a paper on this subject.

Just how often this does occur is a variable figure. The reasons for this variation are due to several factors. First, the time of labor at which the patient is examined. Rucker and Potter, for instance, often terminate labor at the beginning of the second stage; consequently, they would encounter more transverse and posterior positions than the ordinary practitioner. Often the obstetrician sees these patients late in labor when the diagnosis is evident. Second, a proper examination and evaluation is necessary for a correct diagnosis. Various figures are given as to the frequency of this condition. Carter, whose paper is freely quoted by the writer, has scrupulously examined the records of a thousand and six deliveries and found seventy occiput posterior and forty-two occiput-transverse, a percentage of 11.2, with no conclusive figures as to the parity. He quotes statistics from eleven other clinics with figures which vary from 4.4 to 30 per cent. The variation is easily explained by the above.

The exact cause for this presentation cannot be given definitely. As in most obstetric problems, the causes are maternal and fetal. In the mother her position at rest and at work, the muscular tone, anatomy of the soft parts and pelvis influence this. The importance of correct diagnosis of the type of pelvis is most important. Improper rotation is notorious in the flat and funnel type of pelvis. So far as the fetus is concerned, flexion is the most important factor, though abnormalities of the cord and placenta are sometimes causative. Other factors which influence this complication are uterine inertia and premature rupture of the membranes. It is problematic whether a pronounced contraction ring is cause or effect, but its frequent association is note-worthy and should be constantly borne in mind. There is still some doubt in the mind of many as to whether the fetal head engages in the transverse or oblique diameter of the pelvis. In any event the long diameter of the fetal skull must at some time pass through the transverse of the inlet in its decent; here is where flexion comes into prominence. The presenting part must reach the pelvic floor before rotation can take place, and flexion, descent, and rotation are dependent on each other. One of the most frequent complicating factors which we have found is a hand or arm underneath the fetal chin which prevents flexion and encourages extension.

The diagnosis is sometimes rather difficult. A study of the mother and fetus may cause us to anticipate this condition. Whenever you find the fetus lying on the right we should be suspicious of a posterior-occiput. Other palpatory findings are the anterior shoulder away from the mid-line, and the forehead felt as a rounded mass above the pubic ramus. The position of the fetal heart sounds are confirmatory only. Rectal examination may not offer much aid but we can at least make frequent check as to the progress of the head, not being confused by the formation of a caput. In most instances we must rely on palpation of the infant's ear by vaginal examination. We have often noticed that these patients complain of a terrific pain over the sacrum and have suspected this condition from this fact alone. The type and length of labor sometimes make you suspicious of an arrested rotation. The X-ray is of great aid if the roentgenologist is familiar with obstetric diagnosis.

In the management of these cases one naturally wonders what the outcome would be if nothing were done to relieve the patient. It is claimed that about 90 per cent will rotate anteriorly if left alone. Most of us will line up with the conservative viewpoint. So long as the mother is not exhausted and the fetus shows no embarrassment there is no reason for haste. The length of labor should not be judged in terms of hours but rather maternal and fetal morbidity. There are several possibilities of the termination of this complication. First, spontaneous rotation through one hundred and thirty-five degrees to the anterior position. Second, it may rotate to a transverse position and deliver under one of the pubic rami. This is rare. Third, the vertex may be arrested in the deep transverse position. Fourth, occiput may rotate to the hollow of the sacrum. In this event, however, there is

*From the Department of Obstetrics and Gynecology, Duke University.

Read before the Section on Obstetrics and Gynecology of the N. C. State Medical Society, in Winston-Salem, N. C., April, 1932.

still a possibility of spontaneous delivery by either extreme flexion or deflexion.

A satisfactory termination of labor is the object which we all strive for; and if the patient delivers spontaneously we are relieved of further worries. However, in certain instances it becomes necessary to employ operative interference. The treatment should begin during the first stage of labor and should be directed toward preserving the patient's strength and morale. This is best accomplished by mental and physical rest, brought about by the use of the various sedatives and narcotics at hand. The patient should be encouraged to eat. Under no circumstances should she be made to use voluntary muscular efforts. The membranes should be kept intact if possible. Some find abdominal manipulation and correction of value; personally it has given poor results at my hands. We should watch very closely for the formation of a contraction ring, and usually terminate labor before it develops. If the ring has developed it can sometimes be relieved by deep narcosis, and occasionally, as was pointed out by Rucker, the use of adrenalin hypodermically is helpful. If the mother or the fetus begins to show untoward symptoms we may have to give relief. We know that an exhausted patient is more apt to bleed, and that edematous soft parts are more apt to tear, and that a patient who is exhausted, lacerated, and anemic is more prone to infection. These we seek to prevent and judicious interference may be considered conservative.

Danforth has developed a procedure which embraces many good qualities. It most closely resembles the method suggested by Tarnier. The head is allowed to engage and necessary molding to take place. The entire hand is inserted into the vagina and the child's head grasped by the fingers and thumb. The head is rotated into the anterior position. This maneuver is aided by the left hand on the abdominal wall with the fingers holding the child's head in the corrected position. The left blade of the forceps is applied. The blade will now maintain the position and the other blade can be put in place. The operator next assures himself that the occiput remains anterior and extraction may then be done. Sometimes it is necessary to push the head upward in order to accomplish rotation, but he has found no complications where molding has taken place. Bill, after a wide experience and many years of close observation, has reduced the procedure used to two,—version and extraction whenever the largest diameter of the fetal head has not passed through pelvic inlet, and rotation of the head by forceps, according to what has been termed the modified Scanzoni maneuvers. This differs from the old maneuver in that rotation is accomplished by the forceps without any effort at traction. This is worth while as it eliminates the spiral movement and the frequently associated lacerations. He reports splendid results. Vaux and Piper elect podalic version in a great many cases and believe that the safety of the infant and mother are best assured by this method. Many operators favor the Kielland or Barton forceps. The use of forceps in this contingency is predicated on some skill on the part of the obstetrician, and an exact knowledge of the station and position of the fetal head and a proper respect for the soft parts. One should remember that if certain rules are not observed, the condition of improper flexion may be exaggerated instead of corrected. In handling these cases we try to appreciate their occurrence, insist on careful pelvimetry, observe carefully, maintain patient in good condition by rest and food, and avoid useless early straining; version is favored in unengaged vertex, and in engaged vertex, manual rotation and correction is done with the judicious use of forceps, paying particular attention to the bladder and rectum. Caesarean section is elected only in absolute pelvic contractions or acute bleeding complications.

CONTROL OF TYPHOID FEVER IN VIRGINIA.*

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A Decisive Battle.—Dr. William Osler, in his great oration on the Campaign Against Syphilis before the Medical Society of London in May, 1917, said: "The story of the conquest of the great infections is the brightest single chapter in the history of Science." and—"To have succeeded within the memory of some who hear me in reducing the mortality of typhoid fever from between 700 to 800 per million living, to the low figure of 35 per million is one of the decisive battles of humanity." The English statistics quoted are beginning to be approximated in this State. In 1913, when our mortality statistics for Vir-

*Read before the Southside Virginia Medical Association, March 8, 1932, at Central State Hospital, Petersburg, Va.

ginia first began to come in, 709 people died of the disease, or approximately 306 per million living (33.6). In 1929 only 123 died of typhoid, giving a rate of 50 per million or thereabouts (5.1).

We may, therefore, with entire truth say with Osler in paraphrase that the conquest of typhoid fever in Virginia is the brightest single page in the history of Virginia's battle against man's most insidious enemies—these enemies that have lurked so long unseen and for generations unsuspected amid the most familiar scenes and most cherished spots in man's happy memories.

Household Foes.—The victory so nearly complete has been the more remarkable in this democratic land that it has been gained against the handicap of deep prejudice in favor of archaic institutions hallowed by sacred associations. Poets have sung and the pen of genius has recorded in glowing terms the delight of the thirsty soul quaffing with eager lips the sparkling water from the old oaken bucket or stooping on bended knee with heartfelt satisfaction to the cooling nectar from the spring beneath the hill.

The swimming hole, too, has had its inspired eulogists, and every country boy responds to the sentiment with poignant affection. The stable, the barnyard, and even the duck pond and pig-pen at the old homestead have their appeal not only to the senses but to rose colored memory, stirring emotions too deep for words.

Conscientious Objectors.—To change these things in any particular has seemed to many little short of sacrilege, and to some it has appeared preferable to risk death rather than disturb the environmental associations of a lifetime. That the old oaken bucket had been continuously handled through the year by the unwashed hands of the servants and children; that the spring lay beneath the wooded slope on which stood the privy (if any), the pig-pen, and the barn; or that the swimming hole was but a muddy basin catching foulness from many unsanitary homes was entirely beside the mark, and these unpoetic aspects received no serious consideration.

Typhoid fever and dysentery were to the ultra-pious but plagues sent down from above as punishment for sin or warnings for the future, and to draw those unafflicted closer in spirit to God and heaven.

To start a campaign against such a close combination of deep-rooted custom, sentimental associations, and orthodox religious belief, showed a temerity little short of that of those fools who rush in where angels fear to tread.

Science and Leadership.—Since long before Pasteur's researches and Eberth's discovery of the typhoid germ, however, medical men have never hesitated to tell the truths devoted scientists disclosed, and when a leader was found for Virginia in Ennion Williams, the Virginia physicians rallied to him, and our present freedom from the filth-borne scourge, typhoid fever, is the result. From the beginning the State Health Department has stressed education of the public and reliance upon the medical profession as the cardinal tenets of its faith. If at times it has appeared that the doctor's part in this great preventive revolution has been obscured, he may rest assured that no seeming neglect or conscious disparagement can dim the lustre of his fame as the major factor in the war against infectious diseases. His own traditional professional modesty, however, has tended to keep his light under a bushel.

News From the Front.—Since the beginning in 1908 of the State Health Department's activities, regular reports from physicians have formed the basis for its action. Without those reports no health department could do its work. Following the reception of these reports through a series of months and years the real plague spots, so to speak, of the State were revealed, and upon these the limited resources of the State Health Department were concentrated. As the principal sources of these outbreaks were disclosed, the doctors of such communities, led by the local Boards of Health in most instances, applied themselves to removing such sources and educating their clientele in the principles of disease prevention.

The Enemy's Strongholds.—It became increasingly clear at that time that where people congregated most, most typhoid fever abounded, and that the incidence of the disease was in direct ratio to unprotected water supplies and inadequate sewage facilities. This truth was apparent wherever typhoid appeared, whether in town or country. After the second year of the newly organized State Health Department's existence, therefore, an appropriation was secured for the establishment of a Bureau of Engineering. To the carefully planned activities of this Bureau, and the splendid cooperation received by it from the municipalities of the State, is due the sudden

great drop in the typhoid incidence in Virginia. The establishment of protected water supplies and underground sewerage systems in the cities and towns of the Commonwealth, under steady pressure from our Sanitary Engineer, has virtually banished typhoid fever from them. In the campaigns that accompanied the attempt through bond issues to secure funds for these improvements, the local medical profession has always stood solidly with the State Health Department and has furnished the scientific information to their own people upon which intelligent action was based.

The Country Campaign.—As more and more of the towns wiped out their typhoid by comprehensive measures, the State Health Department gave more of its attention to the typhoid problem of the rural districts where hookworm disease and dysentery also took their toll by reason of neglect of fundamental sanitation. With the help of the Rockefeller Foundation and local support, sanitation campaigns of three months' duration were inaugurated by the State Health Department in the most heavily infected areas. Some of these were extended to campaigns of six months and afterwards blossomed out into whole time County Health Departments. Since human excreta is the material in which the germs of typhoid fever and dysentery as well as those of other diseases are harbored, the State Health Department stresses the necessity for establishment of proper arrangements for the disposal of human excreta at every home as a major activity of a local Health Department, and considers a Sanitation Officer a necessary adjunct to such a Department.

The Labor Battalion.—Full time County Medical Health Departments with sanitation and nurse service as adjuncts are not financially feasible at present in many counties in Virginia, and so as a necessary first step in such counties Sanitation Officers are installed on a cooperative basis with County, State, and Public Health Service, and an intensive campaign of privy building is being carried on all over the State. You will, I am sure, be interested to know that Virginia was the first State to develop the Sanitation Officer plan, and that our present Health Commissioner, Dr. Draper, inaugurated it ten years ago while detailed to us from the United States Public Health Service. This Sanitation Campaign is now strengthened by the Sanitary Privy Law, which, when adopted by local boards of health, becomes locally effective and compelling. This direct attack upon the primary sources of typhoid fever is having its effect in a steady and dependable reduction of filth-borne diseases. This reduction has not been as rapid or spectacular as the result in a city when the water is filtered and chlorinated and its suburban privies sanitated in one fell swoop; but when our message gets over and the improved type of pit privy is installed, the typhoid fever rate is definitely and permanently lowered. It is surprising, too, to note how such sanitation seems to affect the incidence of other diseases as well as typhoid fever and dysentery. The following figures from Chesterfield County illustrate this most graphically:

In seven years before the comprehensive sanitation campaign in Chesterfield County,

Typhoid fever showed 32 deaths
In 7 years since only 8, or 75% reduction.
Diarrhea and dysentery showed 122 deaths
in 7 years since only 79, or 35.2% reduction.
Malaria showed 41 deaths
In 7 years since only 2, or 95.1% reduction.
Tuberculosis showed 267 deaths
In 7 years since only 165, or 38% reduction.
All causes of death showed 2,112 deaths
In 7 years since only 1,611, or 24% reduction.

This demonstration of the value of detailed sanitation is sufficiently convincing to satisfy any open mind.

Responsibility for Defeat.—Typhoid fever due to insanitation is a disgrace, and as long as the disease continues to crop up the stigma attached to the presence of open filth depositories and neglected water and milk protection rests upon the community and particularly upon the home that permits gross insanitation upon its premises, upon the Health Officer who has failed to apply epidemiological and sanitary principles. and upon the doctor who fails to anticipate trouble, to advise precaution, to report on suspicion, and to call for help promptly as need appears. In many places in Virginia the family physician is still the only person available with knowledge enough to anticipate typhoid fever from the environmental conditions he sees at many a home. As in time past, he continues to be the State's only reliance in such cases. I for one do not expect him to fail to meet the issue.

A Council of War—With typhoid fever in Virginia on the run before measures well recognized and long approved, it would seem

that it needs but a final charge over the top to complete the rout, and, but for a few importations from outside the State now and then, to eradicate it entirely. This the State Health Department through its Bureau of Epidemiology is attempting to do. We have found that for the past several years most of the typhoid fever that is reported to us shows all the ear-marks of carrier-typhoid. The disease pops up now and then out of a clear sky, with no history of contact with a case, and a close investigation of all contacts reveals at times a heretofore unsuspected carrier. A remarkable case in point in my experience several years ago, occurred at a dairy furnishing milk to Staunton, Va. An outbreak of typhoid had occurred several years previously on the milk route of this dairy. It was decided by our investigators at that time that an unprotected spring showing pollution was in all probability responsible. This spring was protected and cleared of pollution; the epidemic stopped and all was serene. Four years later or thereabouts an explosive outbreak of mild typhoid occurred among a number of children drinking milk from this dairy, all virtually taken sick at the same time. No typhoid fever could be linked up with the dairy farm or the milkers. The dairy was clean and well conducted with a pure, well guarded water supply. A search for a carrier was instituted and it was found that the proprietor of the place, who only milked the cows in emergency, was a carrier who had had typhoid fever many years before. He had, during the absence of an employee, milked a few cows about two weeks previous to the outbreak, with an epidemic of typhoid and the destruction of his business as a consequence.

Sporadic cases through a series of years at Port Republic, Va., investigated by our Bureau of Epidemiology, developed the fact that a citizen who had had typhoid fever in 1920 spread the disease to eight or nine other people from 1921 to 1928, two of whom died. Every physician practicing for ten years will recall cases in his own practice which he could in no manner account for. Unrecognized carriers in the neighborhood would readily explain them.

Over the Top.—We are now trying to enlist the doctors of the State in a specific attack upon the carrier of typhoid. When a case is reported to us. our Epidemiologist writes to the doctor enclosing a card upon which is indicated the data needed to enable us to form a judgment. If there is a Sanitation Officer or a Public Health Nurse available locally, they are communicated with by us and urged to assist the doctor and the local Board of Health in securing the cooperation of the family in preventing further spread. Bulletins to this effect are left with the family. Sanitary disposition of excreta, not only of the patient, which the doctor has already insisted upon, but of the family too is urged, and aid is rendered where necessary in carrying out the provisions of the Sanitary Privy Law. Screens are recommended and aid given in securing at least a temporary screening of the sick chamber during illness. Fly swatters are put into use, fly breeding places are treated, and fly traps too are called into play.

The doctor's efforts are backed up in regard to administering typhoid vaccine to contacts and to people living in the neighborhood of the case. The vaccine is furnished free to the physician if he will administer it. Local health workers are urged to collect at convenient points those who should be vaccinated so as to conserve the doctor's time. The doctor may utilize the nurse in this work if he and the local Board of Health deem it advisable. In order to determine whether the case continues to carry the disease, the doctor is urgently requested to send a series of fecal specimens to the Laboratory. In this he will be assisted by the Public Health Nurse if the County is so fortunate as to employ one. The first specimen should be sent during the third week of illness. The second specimen as soon as patient is up and walking about. The third, one week following the second, and a fourth one week following the third. At least four specimens should be sent. Others, of course, should be sent at intervals if typhoid bacilli continue to be found. Where people will not cooperate by collecting these specimens, rectal swabs will serve the purpose. These specimens will be collected and mailed by the nurse if the doctor in charge delegates this duty to her.

Treatment of Prisoners.—There is nothing known that will absolutely insure complete eradication of typhoid bacilli in a chronic carrier. By far the greater number of typhoid cases clear up after complete convalescence. The search for carriers is simply an effort to know who and where they are, to make sure

that they do not engage as a vocation in handling milk and food eaten raw; to see that they and those nearest them may be informed and instructed, and may thereby guard against the possibility of spread of the disease. People in the home of a typhoid carrier should be regularly vaccinated against typhoid fever every two years. No typhoid carrier should be permitted to draw water from an open well or handle food to be eaten raw by others. The most absolute discipline as to washing hands after toilet and before eating should be observed. If these precautions are taken and pledge of cooperation secured from the patient, no publicity as to the case need be given. If otherwise, then the public should be informed so that it may guard itself.

The Price of Peace.—The time will come in the not distant future when for the doctor not to know the typhoid carriers in his practice will be a serious reflection upon the quality of the service he renders the community. For he will be under obligation to discover these carriers among his clientele. This is but one of the aspects of preventive medicine which he as a citizen. apart from his status as a health conservator, must regard as a duty. These public duties have a way of piling up on the doctor, and the discharge of a duty generally carries with it little if any pay. He, however, has rarely dodged the issue when matters of life and death faced him for solution.

The State Health Department thoroughly appreciates the problem that at present confronts the general practitioner, and, together with organized medicine in Virginia, is applying its best thought and endeavor to save him whole and prosperous in the midst of a generation that is demanding in ever increasing numbers preventive service of him.

A RATIONAL VIEW OF ECZEMA.*

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The subject of eczema is such an important one, not only from a dermatological aspect, but from a general medical view as well, that I do not feel called upon to apologize for bringing before you this subject about which so much has already been said. When one realizes that eczema in its widest sense reprerents about 40 per cent of dermatology and, therefore, between 2 per cent and 3 per cent of all medical complaints, it is a subject which must be of considerable importance to the practicing physician. If, therefore, I can present this subject with possibly some slight variations and new angles, I feel that your time will not have been lost.

I need hardly call your attention to the obvious fact that rational therapy in all branches of medicine depends largely upon the establishment of the true etiological mechanisms of the disease processes in each individual case.

Compare the treatment of tuberculosis, appendicitis, syphilis, pneumonia, rabies, diabetes, pernicious anemia, small-pox, typhoid fever, malaria, and scores of other diseases, both as to care of individual cases and as to prevention, as practiced today, with the woeful lack of scientific care of a century ago. And, conversely, compare the marvelous results obtained in the above diseases with the continued advance of cancer, which so far has baffled all the efforts of research in isolating the true etiological mechanism. It is true that cancer in individual cases can be dealt with quite successfully, notably by surgery and radiology, and occasionally by some of the various sera which are being elaborated, but cancer continues to make its appearance more and more frequently each year, and thousands die of this without a shred of hope. Tomorrow or next year, or ten years hence, or whenever the cause of cancer has been definitely established, this disease will no longer be the horror to medical men that it now is.

And as other diseases are receiving constant study in an effort to understand them more fully and to treat them more intelligently, eczema in recent years has been receiving its share of research as to etiology. No longer is it considered a "boiling out of poisonous humours" circulating in the blood. No longer can "too much acid" in the blood be blamed as the cause of eczema, but a rational conception of this disease is beginning to appear. The above beliefs were held generally even in the beginning of this century, and when, fifteen or twenty years ago, the theory which is now recognized as a truer conception of the disease was propounded, it gained little credence. Eighteen years ago Highman defined eczema as a "cutaneous catarrh due to an interplay between various known and unknown local and predisposing causes to which the skin

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lesions are reactions." This definition has been elaborated and, I believe, clarified by various other men, so that now eczema may be defined as being produced by an eczema-evoking substance coming in contact with an eczema-responsive skin. The eczema-evoking substance has been termed the eczematogen and the eczema-responsive individual the eczematic. The eczematogen is characterized as having a pathogenic potential and the eczematic skin as having a responsive potential, so that the two potentials actively manifest themselves only when the agent comes in contact with the skin. Thus, any eczematogen coming in contact with an eczematic skin will produce the reactions which are termed eczema, whereas, coming in contact with a skin which is not eczematic in potential will produce no disease, and, conversely, as long as the eczematic skin does not come in contact in any way with its particular eczematogen no response will be observed.

The eczematogen can come in contact with the skin in any one of three ways: most commonly by contact with the exterior, as, for example, ivy poisoning; by growth on or in the skin, illustrated by ringworm; and, finally, by the circulation of toxins in the blood stream, as is evidenced by various food allergies.

As the commoner etiological factors have been discovered by diligent research or intelligent observation, the processes developed on the skin by these have been given names and taken from the mysterious melting pot of eczema. The first disease to claim the eminence of a clinical entity differentiated from eczema was the acute vesicular process produced by contact with rhus toxicodendron and allied plants. For centuries what to us now seems obvious, was completely obscure to our forefathers. Certain people, coming in contact more or less intimately with the plant of poison ivy, suffered from an acute eruption which bore all the characteristics of eczema. Whoever was the first to recognize this fact achieved an epoch-making advance in the etiology of eczema. In the light of our accumulated knowledge, this observation may seem very puerile, but at the time it was made it was astounding and paved the way to the proper lines on which modern research in eczema has been undertaken.

Today there are many conditions originally classed as eczema which are no longer considered so mysterious. Ringworm (athlete's foot), until the past decade and a half was almost invariably termed pompholyx or dysidrosis. With the isolation of the various types of fungi which produced this condition, and the proof of their pathogenic activity, ringworm has become a fairly simple condition.

Proper treatment and measures for prevention of recurrence and reinfection make this problem a simple one to the individual sufferer. In the past year or so advances have rapidly been made epidemiologically. Care of public resorts, pools, gymnasia, etc., in many cities has gone forward with rapid strides, and a great deal is being accomplished in the prevention of these epidemics.

Occupational dermatoses are receiving their proper attention, and with the recognition of eczemas induced by various occupations, therapeutic measures are being employed in the prevention and cure of individual cases. The recognition of the etiological factors in acute seborrhoeic dermatitis has brought this out of the category of eczema and its rational treatment has been properly elaborated. Food allergy, particularly in infantile eczemas, is now well recognized, and a great deal can be done for these sufferers who a generation ago were only pitied.

Thus we see that no longer must eczema be treated empirically, with the application of a soothing lotion to relieve acute inflammation, followed by various salves to remove thickening and to peel the skin. The epigram "there are skin diseases which mercury will heal, those which sulphur will heal, and those which only God can heal," cannot stand today. The approach to this disease must be from another attack entirely—that of etiology: careful and painstaking histories, search of fungi in appropriate cases, trichophytin tests when indicated, study of environment for possible offending irritants, careful questioning into diet, cutaneous tests by the scratch method, percutaneously, the patch test, passive transfer—any or all of these must be employed.

I want here to quote briefly a few case histories to illustrate my points. I hesitate to quote them as they are undoubtedly the experience of everyone who has done any work with eczema—a number of successes and a certain number of failures. However, at the expense of seeming egotistical, I believe that my points can be made more clear only by utilizing them.

Case 1. White female, age 19, first seen

March 6, 1930. Complaint: Breaking out on the skin constantly since early infancy. She had never been free of eruption, although there had been times when treatment had been of temporary benefit. Examination revealed a widespread eczema involving the face, neck, shoulders, back, flanks, bicubital spaces, forearms, wrists, hands, popliteal spaces, and ankles. Before consulting us she had been treated by a considerable number of physicians in her home town, in Philadelphia, and in Baltimore. A large number of X-ray treatments had been employed. She had been worked up on several occasions; nothing internally had been found deranged except one report of a "spastic colon." Treatment for this had benefited her none. She had received probably every salve and lotion in the pharmacopeia. The distribution, type, and duration of the disease suggested a food allergy. She was tested intradermally to sixty-two food products and animal emanations. She was found to react to twenty-one of these. This formidable list was excluded from her diet, and animal emanations, notably goose-duck feathers (used in pillows), removed from contact with her skin. Her eczema cleared up very promptly to mild local applications and a course of ultra-violet radiation, and the questionable allergens were one by one returned to her diet after her skin had cleared. We were successful in returning all of these products with the exception of egg white to her diet without producing any cutaneous difficulty. The amount of egg white used in a one-egg cake, however, was sufficient to cause an exacerbation of her eczema on the eating of one teaspoonful of this cake. The patient has now been free from eczema for over a year, although she had suffered from it for nineteen years prior to the removal of egg white from her diet.

Case 2. White female, age 16, first seen September, 1929. She also complained of eruption on her skin since infancy. She was found to have an eczema involving her neck, both shoulders, back, both bicubital and popliteal spaces. Before consulting us she had been treated by a number of physicians in her home town and Philadelphia with little or no benefit. As in Case 1, allergy suggested itself, and she was tested to sixty-one foodstuffs and animal emanations. She was found to react to tea, rice, cocoa, goose-duck feathers, oysters, shad, lima beans, and sheep wool. The foods were removed from her diet and contact with sheep wool and goose-duck feathers was eliminated. Her eczema responded very promptly, and the offending agents were reintroduced into her diet and contact with the skin. It was found that she had no trouble from goose-duck feathers, lima beans, cocoa, tea, or rice, but that oysters, shad, and wool produced exacerbations of her eczema. It was a fairly simple matter to keep her away from oysters and shad, but wool was a very difficult thing and each time that she wore wool her eczema relapsed. For this reason she was disensitized to wool by the use of small doses of sheep wool extract injected subcutaneously over a period of several months, the detailed technique of which I need not here go into. At the end of this period her skin no longer reacted to wool when tested intradermally, and she has since been able to wear woolen dresses with impunity. Here is an eczema of fifteen years' standing, controlled by discovery and elimination of the offending eczematogen.

Case 3. White male, age 17. Complaint: Eczema since the age of 8 years. During the past nine years he had been treated by several of the best men in Pittsburgh (his native city) with little or no benefit. Examination revealed an acute weeping eczema involving the face, neck, bicubital spaces, popliteal spaces, and ankles. As in the other two cases, cutaneous tests were performed and were positive to only one substance, namely, coffee. Further questioning revealed the fact that he had been in the habit of drinking two to four cups of coffee daily since the age of eight,—in fact, since shortly before the onset of his disease, although prior to questioning this association had not been observed. Coffee was removed from his diet and in two weeks the patient was entirely free of his eczema for the first time since its onset, nine years previously.

Case 4. White male, age 56, first seen April, 1931. This patient complained of an eruption of nine months' duration. The disease had started in July, 1930, and progressed unchecked throughout the summer, to improve considerably during the fall and winter, although it had not entirely gone even then. Two weeks before consulting us he had spent some hours in a bathing suit working with his boat. Examination revealed an eczema involving the face, neck, shoulders, arms, forearms, and legs.

The distribution over the shoulders and legs followed the skin exposed when wearing the bathing suit. This suggested the possibility that his disease was produced by contact with some agent while wearing the bathing suit. A small area on the right forearm, flexor aspect (where there was no disease), was exposed to the ultra-violet light for four minutes and a corresponding area on the other forearm to the infra-red. The next day an eruption similar in all characteristics to that elsewhere on his arms and shoulders was present in the area exposed to the ultra-violet, while no change was observed in that exposed to the infra-red. The patient was cautioned to protect his skin from the sunlight, after which his eruption disappeared within three weeks under local palliative measures. He was then allowed to bathe only after 4 P. M., when the actinic rays are practically absent from the sun, which he has been able to do with no further difficulty.

Lest the impression be given that the cause of all eczemas can easily be established, I want to present one case which reveals the other side of the picture.

Case 5. White female, age 20, first seen August, 1930, complaining of an eczema of four years' duration. Examination revealed a typical chronic eczema involving the face, neck, back, arms, bicubital spaces, forearms, and popliteal spaces. Careful search of her history revealed nothing to suggest the etiological factor. Seventy-two intradermal food tests were negative, patch tests to a large number of the articles with which she came in contact in her work were also negative. No leads of any sort could be obtained on repeated questioning. This patient has now been under treatment for just one year. She has been very cooperative, and everything which my ingenuity could devise has been tried with very little benefit to her. Prior to her coming to see me she had been treated during the four years previously almost constantly by two other dermatologists with essentially the same results.

In conclusion, I want to urge you strongly against the figurative throwing up of hands on seeing a case of eczema, and passing over the disease with the statement that it is probably "too much acid in the blood." Although this theory has long been in the discard, at least half of my eczema patients come to me with the complaint that they have too much acid in their blood. Many have been told this by their physicians in this so-called enlightened age. I want to discourage this hopeless attitude and to plead for as rational an attitude towards eczema as there is towards most other diseases, to search diligently and honestly with all the means at hand for the true etiological factors, or for the proper eczematogen which comes in contact with the particular eczematic in producing his eczema. In some cases this is very difficult, in a few apparently impossible, but in the large majority your efforts will be rewarded.

1011 *North Charles Street.*

EVALUATION OF RADIATION THERAPY IN ADVANCED CANCER.*

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The value of radium and roentgen rays is generally indisputable in early cancer of the skin, oral cavity, breast, and cervix uteri. These agents become even more indispensable in the late cancers involving these regions, as well as in other advanced or late cases, because in these advanced stages there is no other procedure that offers as much hope or benefit. These hopeless cases, which daily present themselves, are entitled to just as much care and consideration, and just as much effort should be spent on them as on the cases which offer a chance for permanent cure.

The late cases are in the majority; they become a burden to their families and communities, so that the social and economic problems, aside from the hospital taxations, are of serious importance. If we can add an extra year of life to these unfortunates and make their last days more comfortable; if we can give them a little encouragement and relief by a treatment which offers some hope, however meagre, then that treatment is well worth while. How frequent it is for the radiologist who has been called in consultation and advanced the opinion that there is little or no chance of curing the malignancy, but that lessened pain, increased comfort, and probably prolongation of life is practically certain, to receive the reply: "What's the use of subjecting the patient to all this treatment if you cannot cure him?" Imagine, if you can, the

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hopelessness of being told that your, or your loved one's, disease is incurable, but that there is no use of doing anything even to increase comfort or lessen pain; that it is not worth while to even attempt to prolong your life for a few months or years of comparative comfort. To draw a parallel, the internist treats a great many conditions that he has no hope of curing, as certain chronic cardio-vascular diseases. We speak of the management of such diseases and not their cure.

With our present knowledge of the treatment of malignancy, the majority of sufferers from the disease suitable for radiation treatment are incurable at the time they first present themselves, if we except cases of epithelioma of the skin. Palliative treatment is, therefore, of prime importance, since it involves the majority of the cases seen. Statistics show that the average radiologist is called upon to treat about two and one-half times as many incurable cases as he is those in which he can hope for a recovery. It is not always possible to decide when a case is first seen and examined, whether that case is curable or not. In fact, it is frequently impossible. Fortunately, however, a correct estimation as to the curability of a case is not often essential, because the treatment which would be proper to apply where one expected a cure in a majority of instances would be equally applicable in an incurable case. The advanced cancers have shown sufficient improvement in some instances to justify intensive radiation when the physical condition of the patient permits, not only from the standpoint of relief of pain, but for actually prolonging life. If this policy is followed, one will occasionally be agreeably surprised to see an apparently hopeless case recover.

It is practically impossible to predict the progress of most cases of advanced malignancy. With this in mind, it seems logical that the best way to achieve palliation is to disregard what we are accustomed to think of as palliative treatment and treat the patient as if a cure were expected,—unless the case is beyond all question obviously hopeless. There are very few patients whose physical condition will not permit adequate radiation therapy judiciously administered. Inadequate dosage, and haphazard and improper technique, are responsible for a great many undesirable and disappointing results and consequently conflicting opinions and reports. So-called acquired resistance to radiation following repeated inadequate dosage is a very general and noteworthy observation, and should be avoided.

The general physical condition of the patient probably regulates more than any other single factor the final end results of irradiation. Good results are rarely to be expected in the weak, anemic and cachectic individuals, whereas a patient in fairly good health, normal blood count and good physical endurance may show an extraordinary response for the same type malignancy. There are, of course, certain types of malignancy which are very resistant to radiation, and often there is no way to determine this fact before treatment. Biopsy may give some information on this point and is probably desirable in most cases. However, this is not as important in the advanced, or late case, as it is in the earlier case. If it can be shown that the patient has a type of malignancy well known to be highly radioresistant, the indication for more active treatment, in order to achieve palliation, is obvious.

Our aim should always be to destroy as much malignant tissue as possible, always keeping in mind the effect of such destruction on surrounding normal structures and on the patient's welfare as a whole. There is nothing gained in applying treatment which destroys the disease, but kills the patient.

When a case is absolutely hopeless, as evidenced by extensive involvement of some vital organ, or metastasis, it should not be treated with the same severity as a more hopeful case. For instance, if there is lung involvement or secondary bone involvement, we can usually keep the patient much more comfortable by applying smaller doses of radiation than would be used if the condition were not so far advanced. It is believed by some that repeated small doses of radiation bring about fibrosis in a tumor, and that a large part of the improvement which may be noted is really due to this fibrosis. The amount of fibrosis occurring in tissues following irradiation is apparently in direct proportion to the amount of destruction of radio-sensitive cells. Therefore, it is essential for the radiologist to have a good knowledge of the radio-sensitivity or radioresistance of normal and pathological cells. The reaction of a normal cell to radiation is dependent on its metabolic rate. In other words, cells which are undergoing active mitosis are

readily destroyed by short wave radiation, and adult cells with not any or a slow mitotic rate are difficult to destroy. The first morphologic changes which occur in malignant tissue under the influence of radium and X-rays are observed in the tumor cells themselves and are manifested by the vacuolation of the protoplasm, pyknosis of nuclei, karyolysis and ultimately complete necrosis of the cell. These cellular changes are accompanied by a round cell infiltration which replaces the destroyed cancer cell. Subsequently, this round cell infiltration is changed into dense, sclerotic connective tissue, poor in blood vessels. This connective or fibrous tissue formation may become very extensive, surround islands of cancer cells, and assist in the destruction of the latter by interfering with their nutrition. Furthermore, clinical and experimental investigation has shown that radium and X-rays may impair deeply the proliferating power and consequently the clinical malignancy of the tumor without producing any apparent change in its morphologic appearance. It is quite probable that the first effect of the rays on every malignant tumor is the inhibition of the proliferating power, the sterilization, as it were, of the cancer cells, and that the degeneration and destruction of the tumor cells and the formation of sclerotic connective tissue takes place subsequently. The important role of this fibrous tissue formation cannot be overestimated.

The radiation treatment of malignant disease has now passed through the troublesome optimistic and pessimistic periods and is now established on a fairly scientific basis, as, for instance, standardization of equipment, estimation of skin tolerance for intensive treatments, systematizing fractional doses to the extent of skin saturation or tolerance, and an evaluation of clinical responses on the basis of tumor grading according to the cellular differentiation and sensitivity. In most instances the sensitivity of a tumor is finally determined after radiation has been given.

The success of radiation therapy largely depends on the technique of application, which should be governed by the underlying physical, biological and pathological factors. A high total dosage is the first essential in destroying or arresting most true carcinomatous processes, and, as a rule, the most tumor destruction and tissue reaction and the best results are obtained by delivering this dosage as soon as possible. In employing high voltage roentgen rays we make use of the so-called saturation technique, as advocated by Pfahler in treating most cases of deep seated malignancy, and, I might say, our results have been much better since we have been employing this method. The saturation method consists essentially in delivering a maximum dose (approximately 100 per cent E. S. D.) into the diseased area, and then maintaining this effect for a certain time by means of additional smaller doses to correspond to the loss in effect during any given period. This loss of effect follows the law of mass reaction, that is, the rate of loss represents a logarithmic curve. The theory is that if the radiation can be kept at saturation point during the brief period of sensitivity of the malignant cells and while these cells are still undergoing division, it is likely that the growth can be more completely destroyed. The maximum dose is delivered as quickly as possible to the tumor area, employing multiple fields and cross-firing the rays, and the dosage is retained at saturation point for from ten to fourteen days by means of additional smaller doses. This technique is an undoubted advance over all others, and the reports show that better results are obtained by it than by any other method.

Consideration will now be given to the general plan of treatment which has been found most efficacious in advanced carcinoma of various types and most usual locations.

Carcinoma of the Breast

We will assume that these cases have reached such a state as to offer no reasonable hope of cure. Treatment of such a cancer thus becomes a question of palliation. In undertaking palliative treatment, we should study the case thoroughly and attempt to procure the greatest possible comfort and sense of well-being to the individual for the greatest possible length of time. It is obvious that few rules can be formulated which are applicable to all, or even most of the cases. The individual case is largely an individual problem which must be considered from many angles. In general, the plan of treatment resolves itself into a combination of radio-therapy and surgery. In those cases in which there is a large metastatic tumor found in the axilla and no other evidence of distant metastases, a good therapeutic procedure is to insert radium, or radon, into the tumor masses of both the breast and axilla. This may be supplemented by high voltage

roentgen rays. Under this treatment the tumor shrinks and may become movable off the chest wall. From four to six weeks later, when both tumors have shrunk considerably, a mastectomy may be performed, followed by post-operative roentgen therapy. A patient suffering from a large fungating and ulcerating tumor of the breast which constantly secretes foul discharge is a burden to herself and her associates. Such a case may be treated by the insertion of radium, or radon, into and around the ulcerated area of the tumor, followed by surface application of radium and X-ray therapy. After a period of four to six weeks, the ulcer and tumor generally become diminished in size, and more freely movable, so that a mastectomy may be in order, followed by post-operative roentgen therapy. It must be clearly understood that this represents only a palliative procedure. It seems, however, not only to prolong life (and this is its main advantage) but to make the life of the patient more bearable. It is much more comfortable for the patient, both bodily and mentally, to succumb ultimately to internal metastases than to live for months with a large fungating, offensive carcinomatous ulcer.

In post-operative recurrence and in cases with metastases into distant organs, only temporary palliative results may be expected from either surgery or radiation therapy. However, even in this type of case very gratifying results may be obtained by proper management. Most remarkable results are occasionally obtained in the treatment of skeletal metastases from carcinoma of the breast by the aid of surface application of X-ray and radium therapy. It must be admitted that in general the treatment of hopeless cancer of the breast, or elsewhere, is a discouraging task. It is one, however, that should not be evaded. The morale of the patient is much more likely to be preserved if she does not feel that she is being deserted by her physician. Much can be done to encourage the sufferer and to alleviate the discomfort and suffering by the proper application of radium and roentgen therapy.

Carcinoma of the Uterus

In advanced inoperable lesions of the fundus, radium introduced into the uterine canal, supplemented by high voltage roentgen rays applied externally in adequate dosage, may give considerable relief. The main limitation of treatment with radium is that the required dosage, the exact placing and the exact results cannot be accurately determined. In other words, as Kelly has pointed out, we are working in an invisible field and have no method of determining the surface extent or depth of the lesion and the exact placing of applicators. Bowing, in a recent review of cases in which treatment was given with radium and roentgen rays at the Mayo Clinic from 1915 to 1928, inclusive, concludes that irradiation accomplishes commendable results, whether used alone or as an adjunct to surgery, and the surgeon is relieved of accepting high operative risks and may perform less radical operations by combining his work with carefully applied radiotherapeutic measures.

In carcinoma of the cervix, radiation therapy has one of its greatest fields of usefulness. The principle underlying the plan of treatment, as practiced at the Memorial Hospital, New York City, is to "cross-fire" with radium and high voltage roentgen rays, the entire primary lesion and also the lymphatic drainage area, through which the disease spreads from the primary focus.

A complete treatment consists of a high voltage cycle to the entire pelvis, radium tandems in the cervical and uterine canals, vaginal applicators to the cervix and, in some cases, interstitial irradiation by means of radon seeds buried in any part of the primary lesion which has not responded satisfactorily to the other treatments. In general, the roentgen cycle is given first, which is followed by the vaginal and cervical radium treatments within ten days after the roentgen cycle has been completed. In many advanced cases the high voltage roentgen cycle is repeated to advantage in six to eight weeks after the first series.

In many cases, due to poor general condition of the patient and the presence of a marked secondary anemia, palliation only can be attempted, and we must be careful that our palliative treatment does not make the patient worse instead of better. In these cases, before the use of radiation, it is necessary to restore the patient's strength.

Transfusion is the best and quickest procedure for overcoming blood loss, and may be used to advantage at any time during the course of treatment.

High voltage roentgen therapy is particularly useful in such cases. The treatments may be given in divided doses, while general medical measures are being carried out. In the

majority of instances, such treatment will be followed by marked reduction in size of the ulcerated area and in the amount of fungating infected cancer tissue. The bleeding and discharge diminish and the patient's strength gradually returns. The roentgen cycle may be repeated to advantage in six or eight weeks, and in the interim radium may be applied to the vaginal surface of the lesion. Occasionally, a very radio-sensitive lesion will respond so well to this treatment that a considerable prolongation of life may be obtained.

Intrapelvic glandular metastases, as a rule, do not respond well to external radiation therapy.

CARCINOMA OF GENITO-URINARY TRACT

Prostate.—Radiation therapy is not so encouraging in this affection and can hardly be considered other than palliative. The ideal procedure is the use of radium supplemented by cross-firing of the pelvis externally with high voltage roentgen rays. By using this combination, or with roentgen therapy alone, considerable palliation can usually be obtained.

Bladder.—In primary carcinomata of the bladder that are recognized as inoperable, and also the secondary malignances arising from the uterus, rectum or prostate, the results, while not brilliant, are sufficiently encouraging and gratifying in most cases to make it worth while to treat every case by irradiation. Hemorrhage and pain are, generally, more or less relieved, and occasionally the tumor practically completely disappears. Success in treatment of these genito-urinary conditions depends to a great extent on the cooperation of the urologist and radiologist.

Carcinoma of the Rectum.—Cancers of the gastro-intestinal tract, particularly the adenocarcinoma of the rectum, are resistant to radiation. Probably the greatest palliative measure in this condition is the establishment of a colostomy. Having done this, if it is decided that the remaining treatment can be only palliative, contact applications with radium, supplemented by high voltage roentgen rays externally, may give a great deal of relief, although the chances of a cure by this method are very remote.

It is possible in some cases to treat adequately without colostomy. In this event, the colostomy should be elective rather than emergent. There is a possibility that in some cases the condition may be made operable by suitable radiation treatment and a sufficient interval of time.

In conclusion, an attempt has been made to show the value of radium and roentgen rays as palliative agents in the treatment of advanced cancer, which has reached such a state as to offer no reasonable hope of cure.

Palliation is generally intended to imply any one of a score of proverbial epithets—cessation of bleeding or discharge, relief of pain, local or primary healing, improvement in health and strength, prolongation of life, temporary or partial resumption of usual occupations, or a mental buoyancy that gives the patient a new lease on life.

In the treatment of an advanced, or hopelessly inoperable cancer, the accomplishment of any one or more of these improvements is indeed an achievement and makes the effort well worth while.

BLASTOMYCOSIS.

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and
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Blastomycosis (blastomycetic dermatitis) is generally described as a chronic infection which frequently attacks the skin, and gives rise to reddish or purplish, moist, papillomatous lesions. It is not uncommon that the internal organs may become involved. The name, blastomycosis, is a misnomer. The organism is not a true yeast, although yeast-like forms (budding forms) are seen in the tissues. Cultures disperse any idea of the saccharomyces relationship of the fungus. The exact position is not known, but the genus oidium probably is as near as any at this time.

The disease begins, as a rule, in the skin and subcutaneous wound infection on some exposed surface of the body, the face, hands and arms being favorite sites. The lesions progress from papules by peripheral extension or by the development of new foci until large areas are involved. Crusting is present and on removal of the crust the underlying lesion is found to consist of irregular, papillomatous tumors of a reddish or purplish hue, bathed in a seropurulent fluid. Yellowish areas, small in size, are seen throughout the surface. These are small abscesses. At times the miliary abscesses may coalesce and give the lesion a car-

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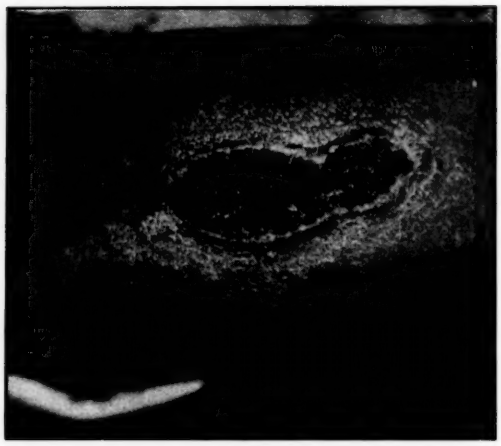

Fig. 1.—Blastomycosis of forearm.

buncloid appearance. The lesions generally heal, somewhat, in the center, with the resulting formation of whitish, atrophic scars. In most of the cases the malady attacks only the skin, but occasionally the infection becomes systemic.

The diagnosis may be made by demonstrating the fungus in the pus from the abscesses, or by histological methods following a biopsy. In the first instance, the pus may be mixed with a small amount of 10% sodium (or potassium) hydroxide and the organism demonstrated as a

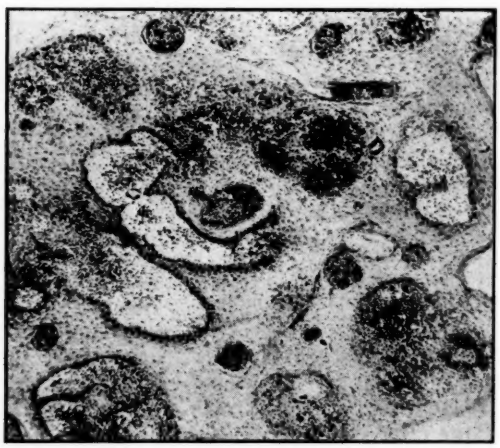

Fig. 2.—Blastomycosis cutis, showing downgrowth of epidermis and miliary abscesses. Low magnification.

doubly contoured budding fungus; or the pus may be cultured and the organism identified in that manner. The growth appears as a cottony colony which, when viewed under the microscope, is seen to be made up of long, segmented and branching mycelial threads. The tissue, stained with hematoxylin and eosin, reveals striking and characteristic changes in the rete, which is the seat of extensive hyperplasia, sending processes deep into the corium. These processes are irregular in shape and branch in all directions. They contain the miliary abscesses which are peculiar to this disease. At times these proliferations of the rete may suggest carcinoma, but it will be found, on close examination, that the structures resembling the whorls, or pearls, of the cancer, are but the rete cells around the beginning abscess. These abscesses may be very small, containing but a few leucocytes; then, again, they may

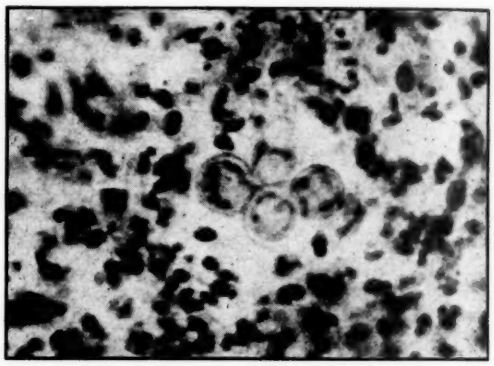

Fig. 3.—Blastomycosis. Organism in tissue. High magnificiation.

be large enough to be seen with the unaided eye. Giant cells are fairly common in the abscesses and may contain the fungus. Eosinophilic leucocytes are numerous.

The majority of the localized lesions do not endanger the life of the patient. The lesion may heal spontaneously. More or less scarring occurs. Systemic infection may follow the local lesion.

The best results of treatment follow the administration of large doses of potassium iodide internally, and the application of the X-ray locally.

Report of Case

Patient, colored male, age 32 years, has always resided in Richmond, Va.

When first seen the patient had a large, elevated lesion on the right forearm. This was indurated and sharply defined. It began three months ago as a small papule, which devel-

oped slowly. Between the papillae there was a small exudation of pus, dried into a yellow crust. The lesion was painless, the top somewhat rounded and roughened with warty projections of a purplish color. Enlargement of the axillary and epitrochlear glands was noted.

Following the biospy, cultures were started from the pus in the tissue. Sections stained with hematoxylin and eosin were examined. These showed the characteristic histopathology, as well as the fungus.

The treatment described above was instituted. About a week later healing of the lesion became readily apparent. As the patient's visits to the dispensary ceased, no further data on the progress of the disease are available.

THE PRACTICAL VALUE OF INFORMATION CONCERNING THE CEREBRO-SPINAL FLUID.*

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The cerebro-spinal fluid is one of the important biological systems which are routinely and so commonly being examined at bedside together with other humoral substances of the organism. It would not perhaps be amiss to pass in review some of our knowledge of the subject and submit it to some criticism with the object of finding out which particular findings may or may not be utilized for diagnosis of various diseases.

First of all, let us consider very briefly the few physiological data on the subject. Is there any relationship between the blood plasma and the cerebro-spinal fluid, and, if so, in what respect? When an intravenous injection of an hypertonic solution of glucose or of sodium chlorid is done, the tension of the cerebro-spinal fluid is lowered. If distilled water is injected intravenously, the tension of that fluid is raised. This experiment seems to demonstrate therefore the existence of an osmotic balance between the cerebro-spinal fluid and the blood. If this is correct, the practical value of this information becomes evident. For example, in acute cases of cerebro-spinal hypotension following cranial traumatism or lumbar puncture, intravenous injection of distilled water is to be recommended. Also the injection of glucose becomes indicated prior to surgical intervention in cases of intracranial tumors. On the other hand, colloid substances or crystalloids of the plasma do not penetrate the cerebro-spinal fluid because of the capillary barrier. The latter protects normally the cerebro-spinal fluid against an invasion of foreign and noxious agents, permitting the passage of elements useful for the activity of nervous elements. Furthermore, that there exists a relationship between the two humoral substances is evident also from the clinical observation that pressure on the deep veins, or during the acts of coughing, sneezing, epileptic attacks, after ligature of jungular veins in thrombophlebitis of the lateral sinus, in cardiac decompensation, in mediastinal compression—in all these conditions there is an increase of tension in the cerebro-spinal fluid. A relationship of tension of the two humours has been observed to be in an actual correspondence between the cerebro-spinal tension and that of the retinal vessels. In addition to these data, it has been observed that, with exception of sodium chlorid which varies more in the cerebro-spinal fluid than in the blood serum, the range of variations of other substances is about equal or less than the range in the blood plasma. It is also true with regard to the total osmotic pressure. The conclusion one reaches is that there is an osmotic equilibrium and an approximately constant composition of both fluids.

The formation of the cerebro-spinal fluid is still a subject of controversy. The prevailing opinion, however, is that the choroid plexuses of the ventricles of the brain with their numerous intricate folds play the most important, if not the exclusive, part in the secretion of the fluid. Among various proofs in this direction one may cite the following case: A neuroma was removed from the eighth cranial nerve; subsequently a cyst developed at the site of the skull defect which communicated with the ventricles. When irradiation of the choroid plexuses was done, the oozing of the cerebro-spinal fluid ceased. The function of the choroid plexuses through its epithelial linings is therefore seemingly chiefly secretory and maintains the intracranial tension.

Besides the problems of secretion, of tension, of the osmotic relationship of the blood plasma and the cerebro-spinal fluid, there is also a problem of whether or not the latter circulates. Here, again, we are on controversial grounds. Experiments with coloring sub-

*Read at the February meeting of the South-East Branch of the Philadelphia County Medical Society.

stances in the hands of some investigators have shown that there is no true circulation. However, this point is not totally settled.

Having these few physiological points in mind, let us now turn our attention to the practical aspects of our knowledge concerning the physico-chemical properties of the cerebro-spinal fluid. Among all chemical tests the quantitative protein determination is of pre-eminent value. The average normal protein content is about 15 to 40 milligrams per 100 c.c. The globulin and albumin are apparently derived from the blood plasma. The amount of the latter is greater than that of the first. Excess of globulin is frequently found in chronic syphilis of the meninges, but of greater practical value is the absence of globulin, and this is almost an absolutely certain indication for a non-syphilitic affection. In epidemic encephalitis it is well to remember that globulin is always increased. In Infantile paralysis total protein is increased and albumin is excessive. The same increase we find in tetanus and hydrophobia. It is interesting to observe that in malaria there is a marked increase of albumin which is being maintained even with the administration of high doses of quinine. Protein is increased in cranial injuries without fractures, also in brain tumors and, finally, in sciatica. It is therefore evident that the information concerning the protein content is of practical value.

The knowledge of the cytology of the cerebro-spinal fluid is of equal importance. First of all, a normal fluid contains two or three lymphocytes, but no polynuclears. This can be determined if counting is done immediately upon the withdrawal of the spinal fluid. If counting is postponed, cytolysis will take place. The latter may be prevented if two drops of glacial acetic acid is added. There are various affections in the course of which the number of cells is increased, which fact is of value in diagnosis. For example, in tubercular meningitis there is 80% lymphocytes. In encephalitis lymphocytosis is present in the beginning, but a gradual decrease takes place coincident with general improvement. Infantile paralysis in its preparalytic stage presents a pleocytosis of 50% of multi-lobed cells. In the first day or two of the actual paralytic state there is a mononucleosis of 90%. The frequency of this cellular condition is so great that the latter becomes almost definitely diagnostic of this disease. In cerebral hemorrhage, in cerebral thrombosis, there is increase of polymorphonuclear cells during the first ten days, but they gradually disappear. Sometimes in spite of severe lesions of the central nervous system there are but slight changes in the cell count, such as in hydrophobia. Tetanus, also a highly infectious disease, shows no change in the cell count. In parasitic diseases of the brain, such as cysticercus, there is absence of lymphocytes, but presence of eosinophiles. In paresis there is great polymorphism of cells, but when treated with malaria there is great decrease of cells, so that, when remission sets in, the cytology becomes normal. When relapse occurs, the above formula reappears. The diagnostic importance of this phenomenon is self-evident. An interesting condition of the cytology is found in infectious processes of the nervous system. In herpes zoster, for example, there is pleocytosis which sometimes exceeds 100.3. It gradually disappears as the inflammatory manifestations recede. In peripheral facial palsy, eight days after the onset, the cell count may reach as high as 236. In Landry's paralysis the cell count may reach the figure of 680. The value of systematic cytological examination can also be appreciated from a very recent observation, according to which tumor cells were found in the cerebro-spinal fluid in cases of tumors involving the ventricles, the surface of the brain and spinal cord, or originating in the meninges (*Ztschr. f. Gesam. Neur. u. Psych.*, 1930, p. 683).

The diagnostic value of protein contents and of the cellular contents is therefore of importance. At this juncture attention may be called to the interrelation between these two elements which has been recognized of equal diagnostic value. It has been observed that in certain pathological states there is a "dissociation" of the quantity of protein and the number of cells. This is the so-called "albumino-cytologic dissociation." Its presence is valuable in cerebral or medullary compression. In spinal cases the increase is more marked below than above the compression. In cerebral tumors the protein is also increased more in the cervical than in the lumbar region, more in the ventricles than in the lumbar region. The dissociation syndrome is so valuable that even an isolated increase of albumin in the fluid alters the mere suspicion of compression

of the spinal cord into a certainty. The same dissociation-phenomenon is found in radiculitis of the lumbo-sacral cord, in encephalitis, in toxic infectious diseases of the central nervous system, in cerebral softening. Increase of cells and decrease in protein are observed in aseptic meningitis. In infantile paralysis the increase of albumin is excessive and proportionate to the increase of cells. In sciatica there may be either hyperalbuminosis or hypercytosis. In high sciatica there is increase of albumin and low cell count, while in low sciatica there is no change. These few examples demonstrate the value of the albumino-cytologic dissociation.

There is another diagnostic phenomenon observed in the cerebro-spinal fluid which deserves our attention. This is the so-called Froin's syndrome. It consists of a yellow spinal fluid which coagulates upon standing. It is indicative of stagnation of the fluid caused by a constriction of the spinal subarachnoid space, due to a tumor, abscess or spinal meningo-myelitis.

The next chemical element of importance in diagnosis is sugar. The normal sugar content in the cerebro-spinal fluid is from 48 to 100 milligrams. Hyperglycorrhachia was observed in acute epidemic encephalitis, brain tumors, syphilitic meningitis, in meningeal complications of infectious diseases, such as scarlet fever, in edema of the brain, multiple sclerosis, diphtheritic paralysis, infantile paralysis, epilepsy, paresis, tetanus and strong emotional states. In all these affections there is probably an increase of permeability of the protective barrier of the choroidal epithelium.

On the first pages, it was mentioned that with great probability there is relationship between the chemical contents of the blood and those of the cerebro-spinal fluid. From a diagnostic standpoint the relationship of sugar is of considerable importance. It may be taken as proven that normally the concentration of sugar in the cerebro-spinal fluid is equal to a half of that in the blood and that variations in one correspond to variations in the other. In pathological states there is an interruption of the ratio equilibrium. For example, in tubercular meningitis the difference between the ratios is greater than in normal. Only slightly greater it is in serous and cerebro-spinal meningitis.

Another important chemical element bearing a diagnostic value is sodium chlorid. The normal contents is 700 or 780 mg. per 100 c.c. of fluid. It seems that pathological kidney lesions have some influence on the ratio of NaCl in cerebro-spinal fluid. It is also well to remember that its content is greater than in the blood (570 mg.). The normal ratio of sugar of the cerebro-spinal fluid is observed in meningismus, syphilitic affections of the nervous system and in eclampsia. A reduction is observed in early periods of meningitis and is most pronounced in tubercular meningitis; it is about 0.59. Such a figure or below is almost pathognomonic of the disease. In this affection the fall is particularly observed in the early periods, but there is a rise in advanced stages. In pneumococcus meningitis there is a continuous decrease of the sugar content. The same is noticed in the meningococcal variety, except that there is a return to normal in favorable cases. While all these figures are not absolute, nevertheless, from the diagnostic point of view, it may be said that the ratio of below 670 mg. is pathognomonic of meningitis in general.

Calcium content of the cerebro-spinal fluid is, generally speaking, of no definite diagnostic value. However, in spinal compression it has a tendency to increase, while in tetany and arteriosclerosis it has a definite diminution. The normal ratio is 6 to 8 mg. to 100 c.c. of cerebro-spinal fluid. In tuberculosis there is an increase. An equal increase is observed in pathological conditions accompanied with meningeal reactions, especially in tubercular meningitis in which it reaches the maximum of 11 mg., the same ratio as in the blood. This rise is probably due to the passage of calcium from the blood stream, since it is well known that meningeal congestion of any nature is likely to increase the passage of various substances from blood into the fluid. Thus the distribution of calcium between blood and fluid may serve as a criterion of the permeability of the hemato-encephalic barrier.

Lactic acid in the cerebro-spinal fluid presents some interesting diagnostic features. In convulsive diseases there is an increase in the fluid and blood, but the ratio of lactic acid in the first is much greater than in the latter. Nephritis is also characterized by an increase of it in the fluid and plasma. Considerable increase is also observed in meningitis. Diabetic coma can be distinguished from uremic coma by a greater amount of acetone in the

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cerebro-spinal fluid in the former affection. Small quantities of uric acid can be traced in the cerebro-spinal fluid. Normally there is 0.54 mg. in 100 c.c. In chorea there is an increase to 0.78; in syphilis there is a diminution to 0.40 mg. In infectious diseases and in uremia its ratio is increased. It is extremely interesting to know that iodide administered in neurosyphilis is found in the cerebro-spinal lues, hence the usefulness of its use as a therapeutic measure.

The cerebro-spinal fluid presents, besides the chemical contents and cytological characteristics, also some physical properties of diagnostic value. Normally it is limpid and clear. It is bloody in cerebral or spinal hemorrhages, and in traumatism of the cerebro-spinal axis. A distinction should be made between an accidental blood tinge and blood forming in the subarachnoid space. Blood from accidental punctures of the needle will be recognized by the clot formed in the fluid upon standing and by the return of the normal color upon centrifuging. Yellow color (xanthochromia) is observed in compression (cerebral or spinal). Blood remaining a long time in the cerebro-spinal fluid eventually produces meningeal reactions and cortical changes; convulsive manifestations have been observed in such cases.

Bacteriogical examination of the cerebro-spinal fluid in pathological states is specific for diagnostic purposes. Tubercle bacillus, spirochetae, meningococcus, pneumococcus have been the subject of important studies. The examination is either direct or by cultural methods. The search for tubercle bacilli has been undertaken by many observers. They all work on the velum or fibrinous clot formed upon standing. Spread on a slide and dried it may be either counterstained with picric acid solution, according to Lancelin, or a centrifuged specimen is injected into the peritoneum of a guinea-pig, according to Peterman. Levinson placed 1 c.c. of spinal fluid in each of two test tubes. In one is placed 1 c.c. of 1 per cent mercuric chlorid. In the other 1 c.c. sulphosalicylic acid. After being agitated, the tubes are left standing for twenty-four hours. This test yields a higher precipitate with the chlorid of mercury, which is pathognomonic of tuberculous meningitis. If the sulphosalicylic acid yields a higher precipitate, tuberculous meningitis can be excluded. A positive reaction is also obtained with the tryptophan-test recommended by Aiello. It has also been observed that the spinal fluid from cisternal puncture is more dependable for the bacteriological diagnosis of tubercular meningitis than that from lumbar puncture.

The presence of syphilitic spirochetae cannot be directly demonstrated in the cerebro-spinal fluid, but we are in possession of several important tests for determination of syphilis, namely, Wassermann, Kolmer, Kahn, Benjoin reaction by Guillain, mastic reaction, colloidal gold reaction, elixir of paregoric reaction by Tergowla, Takata-Ara reaction, and finally, the sigma reaction, which is more exact than the Wassermann, with cardiac extracts. It is interesting to know that in hydrophobia dogs whose cerebro-spinal fluid had been previously drained are less susceptible to contract the disease after an injection of rabies virus or anti-rabic serum.

Further valuable utilization of the cerebro-spinal fluid for diagnostic purposes may be seen from the injections into the spinal canal of lipiodol in cases of blocking in the canal. This method occupies a very important place, as it enables one to determine with X-ray photographs the exact localization of the blocked area. Ventriculography and encephalography are highly valuable procedures as an aid to the clinical information to determine from the deviation or disfigurement of the cerebral ventricles the seat of compression in cases of doubtful neoplasms, aneurisms, cysts, etc.

Conclusion

The above enumeration of the chemical and physical properties, as well as the physiological knowledge so far obtained with regard to the cerebro-spinal fluid, indicate the fact that our information on the subject is far from being absolute. There are many controversial features concerning the relationship of this fluid to the blood plasma, namely, the question of whether or not the former is a dialysate of the latter. the question of maintaining the normal tension, the mechanism of hypertension or hypotension, the question of whether or not the cerebro-spinal fluid circulates. We have also seen that the increase or decrease of the chemical elements in various pathological conditions is not entirely absolute. The cell-count as well as their character also varies at different periods of the same disease. The determination of the bacteriological contents also presents at times great difficulties and uncer-

tainties. In spite of these negative features and absence of absolutely definite and complete information, we have nevertheless seen a multiplicity of positive and proven data concerning the physiology, physics and chemistry of this important humoral substance of our organism. In many instances it will render invaluable aid at bedside when we are confronted with obscure clinical symptoms. Of course, no one manifestation *per se* decides a diagnosis, but when all clinical data are correlated and still we are uncertain, the aid from the chemistry, physics, cytology, tension, and color of the cerebro-spinal fluid may yield valuable diagnostic information and in some instances decide the nature of the malady.

A few words concerning the procedure of obtaining the cerebro-spinal fluid will not be amiss. The old method of puncturing the third or fourth lumbar space below the conus medullaris is too well known to dwell upon. The puncture causes no prolonged pain or untoward symptoms in experienced hands. Although "puncture headache" may occasionally occur, it is not of a serious character and gradually disappears without any consequence. Lately, puncture of the cisterna magna has gained considerable grounds. It was pointed out that for bacteriological investigations the fluid obtained from sub-occipital puncture presents greater advantages over the fluid obtained from the lumbar route. In cases of partial or complete blockage of the spinal canal it is advantageous to use the combined puncture, cisternal and lumbar, for the purpose of observing changes in the pressure and tension. For ventriculograms some neuro-surgeons use only the cisternal routes to inject air. In cases of eclampsia the cisternal route had also proven to be more efficacious than the lumbar one of reducing the intracranial pressure.

Finally, it behooves us to bear in mind this important observation that in cases of brain tumors, especially when their seat is the base of the brain or in the cerebellum, withdrawals of large quantities of cerebro-spinal fluid may be followed by sudden or rapid death.

The subject discussed here presents not only a purely scientific interest, but also and especially a practical value. It is a very important aid alongside the clinical manifestations and in spite of many obscure points, it presents a sufficient amount of positive information.

1812 *Spruce Street.*

A PRELIMINARY REPORT ON THE USE OF ANTERIOR PITUITARY SUBSTANCE IN COMMON BALDNESS

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With the appearance of the article by Bengtson in the *Journal of the A. M. A.* of November 7, 1931, a great deal of interest has been aroused concerning the treatment of alopecia by means of pituitary therapy. Since reading the article, I have been treating a number of cases of baldness, which were selected at random, in an endeavor to prove to myself the efficacy of such a routine as treatment for the general types of alopecia seen by the practitioner. The majority of the cases treated and reported by Bengtson up to the present time have been those of alopecia areata and the type found in Froehlich's syndrome. Comparatively, these forms are infrequent, while recessive, premature and so-called constitutional baldness are seen at every turn. It has been my purpose to ascertain if this treatment is of any avail in the more common forms of progressive loss of hair, and also to see what, if any, is the association between baldness and the pituitary function of the individual. We are acquainted with many pathological conditions found in pituitary dysfunction, yet are unable to say whether common baldness is in any way associated with such dysfunction.

Following the suggestion of Bengtson, anterior pituitary preparations have been used exclusively on all cases. It will be recalled that the anterior lobe of the gland is formed from a ventral invagination and arises from ectoderm. This portion of the gland, according to endocrinologists, has to do with the development of hair and cutaneous appendages as well as the formation of sex characteristics, a phase of the subject in which we are not immediately interested.

My routine in all cases has been to administer intramuscularly 2 c.c. of the extract three times a week, and to have the patient take five grains of the anterior substance in compressed tablet form three times a day.

The possibility of undesirable and coincidental results with the continued use of pituitary substance in this type of case is a moot question, and to the best of my ability I shall relate the various reactions that I have observed along these lines. From its use I have not, up to the present time, seen any ill effects. It is true that in the beginning there is an occasional

complaint of dizziness, but it is assumed that this is essentially psychic, since frequent checks of the blood pressure at this time have failed to reveal any appreciable increase. During the course of the treatment the blood pressure has shown no deviation from normal after four or five months.

In the matter of weight there has not been anything conclusive. It so happens that none of the individuals treated were obese and the only observation is that they have remained at their original weight or have gained a small amount. In no one instance has this increase been over ten pounds. In short, the influence on weight has proven to be negligible.

In some instances, especially at the beginning of treatment, there has been noted a local reaction at the site of injection, exemplifying itself as tenderness or an erythema of varying degree. These reactions for a time proved rather disconcerting on account of the repeated doses. However, this disagreeable element was overcome by intramuscular rather than subcutaneous administration. Since using the former method there has been no complaint of other than transitory discomfort.

A frequently asked question is that concerning the influence of treatment on the growth of hair on other parts of the body. The patients report that to the best of their knowledge there has been a slight increase in growth of the body hair, but in no case has there occurred new hair where it was not previously found.

Sexually the drug has shown no demonstrable effect on those who are apparently normal in this regard. One of the younger patients, who is single, reports that he has more frequent nocturnal emissions than previously.

Basal metabolism checks on the majority of cases showed a variation that one would expect to find in a normal group. These readings were taken after several weeks of the treatment and the deduction is, therefore, that the thyroid gland was not influenced.

Specimens of urine on analysis have given negative results, which dissipates any anxiety as to the possibility of a glycosuria.

The individuals treated ranged in age from 22 to 57 years, with baldness varying in duration from the incipient stage to that of complete baldness for the past twenty-five years. It is true that the entire group has not been under treatment a sufficient length of time to give a fair assay of the value of the therapy and the information concerning results must be taken in the light of a preliminary report. Generally speaking, it is my opinion that the duration of baldness is in direct ratio to the amount of necessary treatment. In other words, those who are just beginning to show evidence of marked loss of hair respond more readily in that there is a rapid check in the progress of the baldness. In periods ranging from two to six weeks patients have reported that the hair has practically ceased falling out in appreciable amounts. This is not expected to imply that there is a cessation of the normal amount of loss. Accompanying results, such as an improvement in the texture and oiliness of the hair have been observed. In one instance the patient states that there has been marked improvement in seborrhea from which he had been suffering. The results in the group of early baldness have been very encouraging in that there has been a check in progression within two months as well as the occurrence of new hair after longer treatment.

The individuals with baldness of longer duration up to the present time have not shown anything conclusively, but, as previously stated, the period of treatment has not been sufficiently long. I am, however, of the reserved opinion that in several of this group there is evidence of new hair. A point brought out in the course of treatment is that the growth of hair does not occur over the entire denuded area at one time, but the lanugo arises from the existing hair line, and in this way gradually covers the bald spot; the first area showing baldness is therefore the last to become covered with hair. In one case where the basal metabolic rate was low, I added a small daily dose of thyroid extract to the routine treatment to see if this would create any acceleration of hair growth. This patient was not showing any results after two to three months of treatment, and even with the addition of this substance there is still doubt as to whether results are encouraging.

X-rays of the sella turcica have been made on all of the cases in an endeavor to see if there was any association between the size and contour of the bony structure and the existing baldness.

The films of the seven cases were examined and the results correlated. The findings as a whole are not considered to bear any definite relation to decrease in pituitary secretion. In two of the cases all of the findings were con-

Case	Age	Degree of Baldness	Duration of baldness in years.	Number of injections	Basal Rate	Results
I.—C. R. J...	22	Marked and progressive	2–3	52	+6	Cessation of falling hair with new growth.
II.—E. T.....	23	Slight	1–2	50	+1	No further loss; new hair.
III.—E. C.....	32	Slight	1–2	52	+7	No further loss; new hair.
IV.—N. P.....	44	Marked	8–9	51	—11	New hair.
V.—I. G.....	57	Complete	25–27	50	—2	Slight growth on sides.
VI.—L. O. W..	34	Marked	9–10	41	—16	No appreciable change.
VII.—H. G.....	28	Marked	4–5	31	—10	Cessation of falling hair.
VIII.—C. H.....	29	Marked	6–7	27		No change.

sidered typically normal in regard to the size of the fossa and general appearance of the head. In three cases there was a slight tendency toward the acromegalic or hyperpituitary type, but the findings in these cases did not vary sufficiently from the normal to definitely indicate such a type. In these cases the fossa measurements were somewhat increased, although in only one of them was the shape suggestive of such a type. In the case suggesting the hypopituitary type the fossa was small and shallow and there was a tendency to bridging between the clinoid processes. In the seventh case the fossa was large and deep, although the general appearance of the head was otherwise normal. We feel, therefore, as above indicated, that the present series of observations do not give us any constant findings in relation to the symptoms present.

In concluding, I might say that in beginning, or early baldness, pituitary therapy is definitely indicated and results may be expected within three or fourth months of continued treatment. These results may be classed as a stop in loss of hair, growth of new hair and improvement in texture and oiliness. In baldness of long standing, although there has been a growth of new hair, this has been exceedingly slow, and considering the time element the procedure is impractical.

2816 *Monument Avenue.*

Analyses, Selections, Etc.

Cannot Afford to be Sick.

Is it the merchant who is having the toughest time during the depression? Is it the banker, the jeweler, the insurance agent? Ask the physician before backing the hearse up at any other man's door. The doctor believes he has suffered more than any other skilled class, and the more he has specialized, the more he has lost. Some of the neurologists who operate sanatoria are wondering what luck they would have if they turned their hospitals into boarding houses, and other specialists are in a plight almost as distressful. Few are the patients, and those few are exceedingly slow pay.

Many persons, of course, are piling up trouble for the future by trying to economize in medical and dental service. It is unreckonably cheaper to go to the dentist every six months than to wait until one's teeth are half-ruined, and then to have to pay as much in trying to bring them back to usefulness as one would have to spend for three years' prophylaxis. The same is true of tonsils, of surgical operations and of medical care generally.

The picture is not altogether gloomy, though. Some people who have been nursing non-existent ailments have found they could get on without the coddling of doctors. Still others, who realized that they could not afford the expense of long illness, have been practicing personal hygiene as they never did before. By avoiding the common drinking cup and the dirty, half-washed glass in public places, by keeping better hours, by watching their diet, by shunning exhaustion and by treating the first symptoms of cold they have kept themselves well. It is quite likely that the lowered death rate of the country, which has been one of the most remarkable features of the depression, has been due to the practice of the sound economy of personal hygiene.—(*Richmond News Leader.*)

Presidents and Places of Meetings of the Medical Society of Virginia

President	Place of Meeting	Year of Meeting
*Dr. R. S. Payne, Lynchburg	Richmond	1870
*Dr. R. S. Payne, Lynchburg	Lynchburg	1871
*Dr. A. M. Fauntleroy, Staunton	Staunton	1872
*Dr. Harvey Black, Blacksburg	Norfolk	1873
*Dr. A G. Tebault, London Bridge	Abingdon	1874
*Dr. S. C. Gleaves, Wytheville	Richmond	1875
*Dr. F. D. Cunningham, Richmond	Charlottesville	1876
*Dr. J. L. Cabell, University	Petersburg	1877
*Dr. J. H. Claiborne, Petersburg	Richmond	1878
*Dr. L. S Joynes, Richmond	Alexandria	1879
*Dr. Henry Latham, Lynchburg	Danville	1880
*Dr. Hunter McGuire, Richmond	Old Point Comfort	1881
*Dr. G. W. Semple, Hampton	Fauquier White Sulphur Springs	1882
*Dr. W. D. Cooper, Morrisville	Rockbridge Alum Springs	1883
*Dr. J. E. Chancellor, Charlottesville	Rawley Springs	1884
*Dr. S. K. Jackson, Norfolk	Alleghany Springs	1885
*Dr. Rawley W. Martin, Chatham	Fredericksburg	1886
*Dr. Bedford Brown, Alexandria	Richmond	1887
*Dr. Benjamin Blackford, Lynchburg	Norfolk	1888
*Dr. E. W. Row, Orange C. H.	Roanoke	1889
*Dr. Oscar Wiley, Salem	Rockbridge Alum Springs	1890
*Dr. W. W. Parker, Richmond	Lynchburg	1891
*Dr. H. Grey Latham, Lynchburg	Alleghany Springs	1892
*Dr. Herbert M. Nash, Norfolk	Charlottesville	1893
*Dr. Wm. P. McGuire, Winchester	Richmond	1894
*Dr. Robt. J. Preston, Abingdon	Wytheville	1895
*Dr. Wm. L. Robinson, Danville	Rockbridge Alum Springs	1896
*Dr. Geo. Ben Johnston, Richmond	Hot Springs	1897
*Dr. Lewis E. Harvie, Danville	Virginia Beach	1898
*Dr. Jacob Michaux, Richmond	Richmond	1899
*Dr. Hugh T. Nelson, Charlottesville	Charlottesville	1900
*Dr. J. R. Gildersleeve, Tazewell	Lynchburg	1901
*Dr. R. S. Martin, Stuart	Newport News	1902
*Dr. J. N. Upshur, Richmond	Roanoke	1903
*Dr. Joseph A. Gale, Roanoke	Richmond	1904
*Dr. Wm. S. Christian, Urbanna	Norfolk	1905
Dr. Lomax Gwathmey, Norfolk	Charlottesville	1906
Dr. Paul B. Barringer, Charlottesville	Chase City	1907
Dr. Wm. F. Drewry, Petersburg	Richmond	1908
Dr. Stuart McGuire, Richmond	Roanoke	1909
*Dr. E. T. Brady, Abingdon	Norfolk	1910
*Dr. O. C. Wright, Jarratt	Richmond	1911
*Dr. Hugh M. Taylor, Richmond	Norfolk	1912
Dr. Southgate Leigh, Norfolk	Lynchburg	1913
*Dr. Stephen Harnsberger, Catlett	Washington, D. C.	1914
*Dr. Samuel Lile, Lynchburg	Richmond	1915
Dr. Joseph A. White, Richmond	Norfolk	1916
Dr. Geo. A. Stover, South Boston	Roanoke	1917
*Dr. E. G. Williams, Richmond. Owing to influenza epidemic and the World War, meeting was not held in 1918, and Dr. Williams held over as President	Richmond	1919
*Dr. Paulus A. Irving, Farmville	Petersburg	1920
Dr. Alfred L Gray, Richmond	Lynchburg	1921
*Dr. E. C. S. Taliaferro, Norfolk	Norfolk	1922
Dr. John Staige Davis, University	Roanoke	1923
*Dr. W. W. Chaffin, Pulaski	†Staunton	1924
Dr. Hunter H. McGuire, Winchester	Richmond	1925
Dr. W. L. Harris, Norfolk	Norfolk	1926
Dr. J. Shelton Horsley, Richmond	Petersburg	1927
Dr. J. W. Preston, Roanoke	Danville	1928
Dr. J. Bolling Jones, Petersburg	Charlottesville	1929
*Dr. Charles R. Grandy, Norfolk	Norfolk	1930
Dr. J. Allison Hodges, Richmond	Roanoke	1931
Dr. I. C. Harrison, Danville	Richmond	1932

*Deceased.

† In 1924, on account of Dr. Chaffin's illness, the first vice-president, Dr. H. H. McGuire, of Winchester, presided.

PRELIMINARY PROGRAM

MEDICAL SOCIETY OF VIRGINIA

Sixty-third Annual Session Richmond

NOVEMBER 1, 2 and 3, 1932

Headquarters: RICHMOND ACADEMY OF MEDICINE BUILDING

SCIENTIFIC PROGRAM
Tuesday, November 1, 1932
8:00 P. M.
Ball Room, John Marshall Hotel
Open to Profession and Public

Call to Order—J. Powell Williams, M. D., Chairman Committee of Arrangements.

Invocation—Rev. George E. Booker, D. D.

Address of Welcome—Hon. J. Fulmer Bright, Mayor of Richmond.

Announcements.

Address of President—I. C. Harrison, M. D., Danville.

Memorial Hour.

Address—Mrs. Walter Jackson Freeman, President, Woman's Auxiliary to the American Medical Association (*invited guest of the Woman's Auxiliary*), Philadelphia.

Address—The Most Generally Prevalent, the Most Inadequately Treated and the Most Easily Controlled Chronic Disease—Robert B. Osgood, M. D., (*invited guest*), Boston, Mass.

Address—A Third of a Century of Medical Education in the United States: A Critical Appreciation by a General Practitioner—William Minor Dabney, M. D., (*invited guest*), Baltimore, Md.

Wednesday, November 2
Richmond Academy Medicine Building
9:00 A. M.

Penetrating Wounds of the Thorax—I. A. Bigger, M. D., Richmond.

Discussion to be opened by R. L. Payne, M. D., Norfolk.

Division of Pleural Adhesions in the Pneumothorax Treatment of Pulmonary Tuberculosis: Report of Ten Cases (*lantern slides*)—E. C. Drash, M. D., University, and O. N. Shelton, M. D., Sanatorium.

Discussion to be opened by Hugh Trout, M. D., Roanoke.

Tumors of the Ribs: Report of Case—C. Carroll Smith, M. D., Norfolk.

Discussion to be opened by C. L. Harrell, M. D., Norfolk.

Symposium Diseases of the Heart

(a) Etiology and Prevention of Heart Disease—J. Edwin Wood, Jr., M. D., University.

(b) Acute and Subacute Endocarditis—Walter B. Martin, M. D., Norfolk.

(c) Diagnosis and Treatment of Coronary Disease—George B. Lawson, M. D., Roanoke.

(d) The Use of Drugs in Heart Disease—William B. Porter, M. D., Richmond.

Discussion to be opened by Manfred Call, M. D., Richmond, and B. M. Randolph, M. D., Charlottesville.

Wednesday, 3:00 P. M.

A Comparative Study of Prostatectomy and Transurethral Resection of the Prostate—A. I. Dodson, M. D., Richmond.

Discussion to be opened by S. Beverly Cary, M. D., Roanoke.

The Treatment of Selected Cases of Encephalitis by a New Method—Beverley R. Tucker, M. D., Richmond.

Discussion to be opened by Frank H. Redwood, M. D., Norfolk.

A Routine Personality Study for Office Use—David C. Wilson, M. D., University.

Discussion to be opened by Beverley R. Tucker, M. D., Richmond.

Cancer of the Colon—J. Shelton Horsley, M. D., Richmond.

Discussion to be opened by Edwin P. Lehman, M. D., University.

Partial Resection of the Stomach for Ulcer—G. Paul LaRoque, M. D., Richmond.

Discussion to be opened by Hugh Trout, M. D., Roanoke.

Postoperative Tetany—J. M. Emmett, M. D., Clifton Forge.

Discussion to be opened by James H. Smith, M. D., Richmond.

Wednesday, 8:00 P. M.
Ball Room, John Marshall Hotel

The Year's Progress in Health Work Relating to the Medical Profession—Warren F. Draper, M. D., Richmond.

Discussion to be opened by W. O. Bailey, M. D., Leesburg.

Undulant Fever and Its Relation to Brucelliasis in Cattle and Swine in Virginia: Preliminary Report—L. E. Starr, D. V. M., Blacksburg, and Kenneth F. Maxcy, M. D., University.

Discussion to be opened by Henry B. Mulholland, M. D., University.

The Treatment of Malignant Neutropenia—Regena C. Beck, M. D., Richmond.

Discussion to be opened by William B. Porter, M. D., Richmond.

Some Results of Serum Therapy in Lobar Pneumonia—Charles P. Ryland, Jr., M. D, Binghamton, N. Y.

Discussion to be opened by Walter B. Martin, M. D., Norfolk.

Observations in the Management of One Hundred Foreign Bodies in the Air and Food Passages (*lantern slides*)—E. G. Gill, M. D., Roanoke.

Discussion to be opened by E. U. Wallerstein, M. D., Richmond.

Thursday, November 3
Richmond Academy Medicine Building
9:00 A. M.

A Non-Operative Treatment for Delayed Union in Tibia (*lantern slides*)—D. M. Faulkner, M. D., Richmond.

Discussion to be opened by J. T. Tucker, M. D., Richmond.

The Soft Parts and Joints in Fracture Cases—M. H. Todd, M. D., Norfolk.

XUM

Discussion to be opened by Foy Vann, M. D., Norfolk.

The Treatment of Fractures of the Os Calcis (*lantern slides*)—Robert V. Funsten, M. D., University.

Discussion to be opened by H. Page Mauck, M. D., Richmond.

Exophthalmic Goitre—R. DuVal Jones, Jr., M. D., Norfolk.

Discussion to be opened by Hugh Trout, M. D., Roanoke.

Neoplastic Diseases of the Skin and Mouth, with *lantern slide* Demonstration—Wright Clarkson, M. D., Petersburg.

Discussion to be opened by Fred M. Hodges, M. D., Richmond.

Subacute Bacterial Endocarditis Following the Extraction of Teeth—Douglas VanderHoof, M. D., Richmond.

Discussion to be opened by T. Dewey Davis, M. D., Richmond.

Endometriosis with Acute Intraperitoneal Symptoms (*lantern slides*)—J. Warren Sayre, M. D., Newport News.

Discussion to be opened by A. P. Jones, M. D., Roanoke.

Thursday, 3:00 P. M.

The Pharmacology of Digitalis—Harvey B. Haag, M. D., Richmond.

Discussion to be opened by D. C. Ashton, M. D., Richmond.

Pyelonephritis with Special Reference to Etiology—B. E. Harrell, M. D., Norfolk.

Discussion to be opened by John H. Neff, M. D., University.

Recent Progress in Prostatic Surgery—Donald S. Daniel, M. D., Richmond.

Discussion to be opened by Lawrence T. Price, M. D., Richmond.

Pollen Prevalences in Virginia: Review of a Six Year Survey—Warren T. Vaughan, M. D., and W. Randolph Graham, M. D., Richmond.

Discussion to be opened by J. B. Bullard, M. D., Richmond.

An Analysis of the First Year of the Work of the Allergic Clinic of the University of Virginia Hospital—Oscar Swineford, Jr., M. D., University.

Discussion to be opened by J. B. Bullard, M. D., Richmond.

Ulcerative Syphilitic Lesions of the Stomach—Lewis C. Pusch, M. D., Richmond.

Discussion to be opened by S. W. Budd, M. D., Richmond.

Special Order—Report from the House of Delegates
Induction of New President.
Adjournment.

ANNOUNCEMENTS

REGISTRATION AND INFORMATION BUREAU
Richmond Academy of Medicine Building, 1200 East Clay Street

Dues may be paid at Registrar's Desk. Please advise Registrar of any change of address.

SCIENTIFIC SESSIONS
Evening Sessions—Ball Room, John Marshall Hotel
Morning and Afternoon Sessions—Auditorium, Richmond Academy of Medicine Building

BUSINESS SESSIONS
Richmond Academy of Medicine Building
Council—Tuesday, November 1, at 11:00 A. M.
House of Delegates—First Session—Tuesday, November 1, at 4:00 P. M.

CLINICS
Tuesday, November 1, 2:00 to 5:00 P. M.
Special Clinic on **Arthritis**, by Dr. Robert B. Osgood, of Boston.
Other Clinics in **General Medicine, Surgery, Obstetrics and Pediatrics.**

SCIENTIFIC AND COMMERCIAL EXHIBITS
Library Building, Medical College of Virginia

GOLF TOURNAMENT
36-Hole, Medal Play Tournament, at Country Club of Virginia, beginning at 10:00 A. M., Tuesday, November 1. Club Handicap required. Chairman, Dr. Thomas W. Murrell, 17 East Grace Street, Richmond.

WOMAN'S AUXILIARY
John Marshall Hotel

The Virginia Pediatric Society will have its annual luncheon meeting on Wednesday, November 2, at Westmoreland Club, at 1:15 P. M. Guest speaker will be Prof. H. S. Jennings, of Johns Hopkins Hospital. Luncheon tickets are $1.00. Reservations should be made through Dr. N. Thos. Ennett, 1927 Hanover Avenue, Richmond.

Correspondence

An Appeal to Members of the State Society.

DEAR DOCTOR:

I am writing to ask for your cooperation in a special effort to make our annual meeting in Richmond a success in every respect. This should be a real get-together meeting. Each Councilor, Delegate and officer should make an effort personally to invite by letter, phone or otherwise, as many as possible of his constituents to plan to attend the Richmond meeting. It will surprise us to see how much can be accomplished by a real effort of this kind. I am asking the officers of every component society to make an appeal to the members at their October meetings. We want 1,000 members at the Richmond meeting. They will be there if you will help.

The clinics alone will more than repay you for the trip.

Cordially and sincerely yours,

I. C. HARRISON, M. D.,
President, Medical Society of Virginia.

Woman's Auxiliary, to the Medical Society of Va.

PRESIDENT—*Mrs. J. Allison Hodges*, 5511 Cary Street Road, Richmond.
PRESIDENT-ELECT—*Mrs. W. P. McDowell*, Larchmont, Norfolk.
SECRETARY—*Mrs. James K. Hall*, 3011 Seminary Avenue, Richmond.
TREASURER—*Mrs. Reuben F. Simms*, 2034 Park Avenue, Richmond.

Annual Auxiliary Meeting—November 1st, 2nd, and 3rd.

This will be the last call to the Convention. I urge all doctors' wives to come and make it the "biggest and best" Auxiliary meeting we have ever had. The Auxiliary has already proved its value to the medical profession and the community, and, if we have a united and enthusiastic group, we can accomplish great things. Our guest of honor will be Mrs. Walter Jackson Freeman, the President of the Auxiliary to the American Medical Association. We hope many women will be present to hear her inspiring message.

The hostess Auxiliary has arranged an interesting program and extends a cordial invitation to all doctors' wives, daughters, and mothers, whether or not members of the Auxiliary, to attend the Annual Meeting of the Auxiliary, November 1st, 2nd, and 3rd.

MARY GRAY HODGES,
President.

PROGRAM
Annual Meeting
November 1-3, 1932
Headquarters, John Marshall Hotel, Fifth and Franklin Streets

Tuesday, November 1st

Registration, 3:00 to 5:00 P. M. and 7:00 to 9:00 P. M., at John Marshall Hotel.

3:00 P. M.

Meeting of the Executive Board, on Mezzanine, John Marshall Hotel.

8:00 P. M.

Opening Meeting of the Medical Society of Virginia, in Ball Room, John Marshall Hotel.
Mrs. Walter Jackson Freeman, President of the Auxiliary to the American Medical Association, will be one of the speakers.

Wednesday, November 2nd
9:00 to 10:00 A. M.
Registration

10:00 A. M.

Annual Meeting of the Auxiliary, in Room No. 3, John Marshall Hotel
Call to order.
Invocation
Address of Welcome.
Response.
Minutes of last Annual Meeting.
Report of Board Meeting.
Report of Secretary.
Report of Treasurer.
Report of President.
Report of Delegate to American Medical Association.
Report of Delegate to Southern Medical Association.
Reports of Standing Committees:
- Health Education.
- Organization.
- Public Relations.
- Hygeia.
- Legislation.
- Historian.

Reports of Component Auxiliary Presidents.
Address by Mrs. Walter Jackson Freeman, President of the Auxiliary to the American Medical Association.
Greetings from President and Members of the Advisory Committee of the Medical Society of Virginia.

1:30 P. M.

Luncheon at Country Club.

3:00 to 5:00 P. M.

Sight Seeing Tour.

Thursday, November 3rd
10:00 A. M.

Keynote of Meeting: "Healthier Children for Our Nation."
Ten minutes given to each of the following subjects:
1. The Importance of Pre-School Examination—Miss Ellen Smith.
2. Correct Position, Lighting and Ventilation—Dr. Mary B. Baughman.
3. Wholesome Food in Proper Amount—Mrs. Wyndham B. Blanton.
4. Supervision of Recreational Activities—Miss McCarthy.
5. Mental Hygiene: "Role of Prevention in Behavior Problems"—Dr. D. C. Wilson, University of Virginia.

Informal Discussion.
Report of Nominating Committee.
Induction of New Officers.
Report of Courtesy Committee.
Adjournment.

3:00 P. M.

Card Party and Tea.

News From Other State Auxiliaries.

We wish to express our appreciation to Mrs. M. P. Overholser for the "News Letter" she sends out each month. These contain much valuable information and are most interesting and helpful.

The President of the Virginia Auxiliary wishes to take this means of expressing her personal thanks to Mrs. Overholser for the news of the other State Auxiliaries she has given us so regularly.

"THE GOLDEN RULE"

Missouri's 1931-32 Year Book carried the following word from her beloved, then National President, Mrs. Arthur B. McGlothlan:

"The Golden Rule may not say: Protect children against communicable diseases; take care of mothers in childbirth; secure pure milk and pure water; help humanity to adjust itself rather than increase crime, delinquency and dependency; take care of the child limping a little in the race, with a handicap—but when it says: 'Love your neighbor as yourself,' in modern times it means these things and because the Medical profession is doing these things and the Auxiliaries are helping to do them, I believe in the Auxiliary."

Educating a Doctor's Wife.

The California Auxiliary prize essay contest on "Educating a Doctor's Wife" closed some months ago. The first prize essay from the June *California and Western Medicine* is herewith submitted for the pleasure and profit of all readers: The author is Mrs. Emmet A. Pearson, Los Angeles, Calif.

Doctors' wives are assuredly made and not born, for it would be asking too much even of eugenics to produce an individual with the required set of unique inhibitions and reactions. Granted then that she is to be made, let us look into the educative processes that are to do the making. It might be well first to inquire as to when the education should begin, pre- or postmatrimonially, and lest there be any controversy on the subject, we shall consider as decisive the answer made by an eminent member of the medical profession when approached on this very point. Said he, "You'd better not educate them too much beforehand, or they'll never marry doctors!"

Thus we would suggest an institute for doctors' wives, conducted as part of the educational program of the Woman's Auxiliary. Membership on the teaching staff may be made honorary or punitive, as seems best in each Auxiliary. Entrance requirements need include no evidence of previous folly, save the statement that the applicant has married a duly licensed M. D. The fundamental courses to be required may be divided roughly into arts and sciences. Mathematics as such need have no place, because the application of even simple arithmetic to a doctor's income is discouraging, not to say impossible.

The *sine qua non* of the whole course should be the study of the art of discreet speech. This should be extensive and intensive, and must give instruction as to how to cope with the following typical questions:

1. "What sort of an operation did Mrs. Dash have?"
2. "What should be done for infantile paralysis?"
3. "Does Mrs. Blank's little boy have anything catching?"
4. "What does your husband charge?"

There should be illustrative material with specimens from life, and these should include: (a) The doctor's wife who relates the errors made by other men who have dealt with her husband's patients; and (b) The chatty one who mentions her husband's patients by name and ailment, with treatment outlined.

The other art course we suggest as essential would be the art of medical reading and pronunciation. All good doctors' wives should be able to read professional treatises with a look of comprehension, even of enjoyment. This may take some practice. Triumph and reward will come, however, with the ability to see nonchalantly an esoteric word like "gastroenterostomy!"

The required science courses would also be two in number—phonology and relativity. By the former we mean instruction in the science of dealing with that black imp so entrenched in the physician's household—the telephone. The doctor's wife must learn when to address it just politely, when cordially, when firmly and crisply. She must know the proper occasions for replying, "No. May I take a message for him?" and, "I'll get in touch with him," and, "The doctor is out and cannot be reached for hours!"

Relativity, as one might expect, would be an elusive, intricate course It would deal primarily with time, although space and distance would often be involved. For instance, the course should train the doctor's wife to estimate instantly the relationship between the time set for any social engagement and the relative number of minutes or hours due to elapse before the appearance of any given doctor. She must learn to judge from the standpoint of hostess, when she will have a number of doctors to consider, as well as from the standpoint of guest, when it is her responsibility to produce her own doctor at the appointed place, if possible before the hostess' patience has vanished entirely. There would be many other phases of this invaluable course.

Finally, we would suggest that there be no degrees granted. If ever a select Auxiliary committee perceives that any doctor's wife has forgotten what she learned, she should be returned for further instruction. Generally speaking, the course will take a lifetime, anyway.

Comments on Accepted Products

Oral Therapy in Congenital Syphilis.

The use of Stovarsol in congenital syphilis by pediatricians abroad induced Maxwell and Glaser to investigate the value of the therapy. The results achieved in ten cases are reported in full in the *Am. J. Dis. Child*, 43:1461-1489, June, 1932.

In four cases the Wassermann reactions were negative when treatment was begun, but as the parents were 4+ treatment was not delayed. These cases had remained negative over a period of thirteen months when reported. The other six cases had positive Wassermann reactions. Three were reversed after the first course of treatment, two at the end of the first rest period, and the other at the end of the second course of Stovarsol therapy. The results in these infants, all under one year of age when treatment was begun, are encouraging. Children over one year of age did not respond so readily.

Other advantageous features of Stovarsol therapy in congenital syphilis in infants and children as reported are: the remedy is administered by mouth, and the patients generally show improvement in appetite, general vigor and energy.

The authors believe that Stovarsol has a definite place in the treatment for congenital syphilis. Administration must always be under the direction of the physician as toxic symptoms may appear. In

the majority of cases these symptoms are evidently mild in character but occasionally they may be severe.

Stovarsol is a pentavalent arsenic preparation allied to arsphenamine in its chemical constitution. It is manufactured in this country by Messrs. Merck & Co., Inc., of Rahway, N. J.

Its Quick Action Prevents Deformities.

No antiricketic substance will straighten bones that have become misshapen as the result of rickets. But Mead's Viosterol in Oil 250 D can be depended upon to prevent ricketic deformities. This is not true of all antiricketic agents, many of which are so limited by tolerence or bulk that they cannot be given in quantities sufficient to arrest the ricketic process promptly, with the result that the bones are not adequately calcified to bear weight or muscle-pull and hence become deformed.

Truth About Medicine

In addition to the articles enumerated in our letter of July 30th, the following have been accepted:

Abbott Laboratories
- Haliver Oil with Viosterol 250 D—Abbott
- Soluble Gelatin Capsules Haliver Oil with Viosterol 250 D—Abbott, 3 minims

Ciba Co., Inc.
- Solution Dial-Ciba with Urethane, Sterile Ampules, 1.1 c.c.
- Solution Dial-Ciba with Urethane, Sterile Ampules, 2.3 c.c.

Cutter Laboratory
- Normal Serum (From the Horse), 100 c.c. bottle

Lederle Laboratories, Inc.
- Normal Horse Serum, 30 c.c. vial packages

National Drug Co.
- Tetanus Perfringens Antitoxin

Parke, Davis & Co.
- Liver Extract—P. D. & Co.
- Vials Liver Extract—Parke, Davis & Co.
- Liver Extract, Intramuscular—P. D. & Co.
- Glaseptic Ampoules Solution Liver Extract—P. D. & Co (Intramuscular)
- Parke-Davis Haliver Oil with Viosterol—250 D
- Soluble Gelatin Capsules, Parke-Davis Haliver Oil with Viosterol—250 *D*, 3 minims

Smith, Kline & French Laboratories
- Pentnucleotide
- Vials Pentnucleotide, 10 c.c.

The following articles have been exempted and included with the List of Articles and Brands Accepted by the Council But Not Described in N. N. R. (New and Non-official Remedies, 1932, p. 487):

Sharp & Dohme, Inc.
- Pollen Extracts Diagnostic—Mulford, zone test packages.

NEW AND NON-OFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Non-official Remedies:

Triphal.—A product consisting essentially of sodium aurothiobenzimidazole carboxylate with a small amount of a product of indefinite composition. Triphal contains from 44 to 47 per cent of gold. It is proposed for use as a gold salt in the treatment of lupus erythematosus. The product is supplied in 0.025 Gm. and 0.1 Gm. ampules. H. A. Metz Laboratories, Inc., New York.

Liver Meal.—A mixture containing desiccated beef liver 81 per cent, malted milk 18 per cent, and powdered cinnamon 1 per cent. Liver Meal is prepared to meet the need of a concentrated liver diet in a form that is palatable and convenient. Livermeal Corporation, Hoboken, N. J.

Scarlet Fever Streptococcus Antitoxin Refined and Concentrated (National).—A scarlet fever streptococcus antitoxin (New and Non-official Remedies, 1932, p. 364), prepared by inoculating horses with scarlet fever streptococcus toxin and live virulent cultures of scarlet fever streptococci by license of the Scarlet Fever Committee, Inc. It is marketed in syringe packages of 2,000 units (Prophylactic dose); in syringe packages of 6,000 units (therapeutic dose); and in single 1 c.c. vial packages (for the diagnostic blanching test). National Drug Co., Philadelphia. (Jour. A. M. A., August 13, 1932, p. 562.)

FOODS

The following products have been accepted by the Committee on Foods of the American Medical Association for inclusion in Accepted Foods:

Squibb Vitavose (E. R. Squibb and Sons, New Brunswick, N. J.)—A powdered extract of malted wheat germ and U. S. P. malt; essentially maltose, dextrins and "starch intermediate products"; contains vitamins B and G in substantial quantities; packed in tins. It is claimed to be intended especially for the carbohydrate, food iron, and vitamins B and G supplement of milk for infants or malnourished adults and children, expectant and nursing mothers, invalids and convalescents.

Mead's Florena (Mead Johnson & Co., Evansville, Ind.)—A partially cooked and moderately baked patent wheat flour. It is claimed to be a partially dextrinized wheat flour for use in infant feeding, and to be especially indicated as a routine cereal diluent, in cases of sugar intolerance, as a base for "butter-flour mixtures," and for high starch feedings.

Squibb Dextro-Vitavose (E. R. Squibb & Sons, New Brunswick, N. J.)—A powdered mixture of dextrose and extract of malted wheat germ and U. S. P. malt; essentially dextrose, maltose, dextrins and "starch intermediate products." Vitamin assay shows a content of vitamins B and G at least equal to thirty times and ten times, respectively, of that of equal weights of fresh raw whole milk. It is claimed to be intended particularly for the carbohydrate, and vitamins B and G supplement of milk for infants, and as a similar diet supplement for children and adults.

PROPAGANDA FOR REFORM

The Relative Efficiency of Vitamin D Preparations in Different Species.—The discovery of the antirachitic potency of viosterol (irradiated ergosterol) created the hope that the strength of each of the many specifics for the treatment of rickets could be simply expressed in terms of a pure chemical substance. Clinical experience soon revealed that various products of equivalent antirachitic potency, as judged by the rat test, possessed markedly different values for the treatment of infants. While the infant requires only twenty times as much cod liver oil as the rat, on the basis of equal weights, about sixty times as much viosterol is necessary. There is some evidence indicating that irradiated milk, or milk from cows fed irradiated yeast, is somewhat more efficient in the child than in the rat, when cod liver oil is the basis of comparison. To protect the average child from rickets, Hess and his collaborators find that about one liter of suitable activated milk, 15 c.c. of standard cod liver oil, or ten drops of viosterol is sufficient. In terms of rat units these quantities

XUM

are respectively 160, 200 and 830; that is, for each rat unit in the form of activated milk, 1.25 units as cod liver oil or 5.2 units as viosterol is required. Regardless of the cause, the differences in effectiveness of the antirachitic factor in various species can readily be compensated for by altering the dosage in accordance with experimental facts. The differences in pharmacologic activity, therefore, should not be construed as evidence purporting to discount the value of viosterol. (Jour. A. M. A., August 13, 1932, p. 565.)

Book Announcements

Pharmacology of the Medicinal Agents in Common Use. By STANLEY COULTER, Ph. D., Sc. D. Prepared Especially for Students of Medicine. Copyrighted by Eli Lilly and Company. 1932. Published by Eli Lilly & Company, Indianapolis, Ind. Flexible fabricoid binding, 254 pages, 3⅜ by 6 inches, green edges. Price, 50 cents per copy, postpaid.

The student of medicine will always find the large standard texts on pharmacology indispensable for critical study of the actions and uses of drugs. These texts, however, are in many instances so voluminous that they are not available for ready reference or for study in spare moments.

Heretofore there has been no comprehensive, small-size work on pharmacology. To meet this need Dr. Stanley Coulter, Dean Emeritus of the Purdue University School of Science, spent over three years in the preparation of a compact treatise on the pharmacology of the drugs now in common use by the medical profession. In this work he had the cooperation of members of the medical and research staffs of the Lilly Laboratories.

The subjects are alphabetically arranged for quick reference. Under each title there is a terse statement of the constituents of the drug, its physiological action, dosage, and brief mention of its more important therapeutic uses.

This Pharmacology is prepared with special attention to the needs of the medical student. The main part of the text dealing with individual drugs is followed by an appendix of tables and miscellaneous information useful to the medical student. In no sense is this book intended to supplant the larger standard texts on pharmacology. On the other hand, it is the hope of its author and the publishers that the use of the pocket-size book will so intrigue the student in the subject that he will be led to closer studies of the great authorities on pharmacology.

The Sputum. Its Examination and Clinical Significance. By RANDALL CLIFFORD, M. D., Associate in Medicine, Peter Bent Brigham Hospital; Assistant in Medicine, Harvard Medical School; Formerly Associate Physician and Director of Pulmonary Clinic, Massachusetts General Hospital, New York. The Macmillan Company. 1932. Octavo of 167-xix pages. Illustrated. Cloth. Price, $4.00.

Functional Disorders of the Large Intestine and Their Treatment. By JACOB BUCKSTEIN, M. D., Instructor in Gastrointestinal Roentgenology, Cornell University Medical College; Alimentary Tract Division, Roentgen Department, Bellevue Hospital, etc. Harper's Medical Monographs. Harper and Brothers. New York and London. 1932. 12mo. of 265-xiv pages. With 60 Drawings in the Text and 40 Reproductions of Radiographs. Leatherette. Price, $3.00.

The Village of the Great Kivas on the Zuni Reservation, New Mexico. By FRANK H. H. ROBERTS, Jr. Smithsonian Institution. Bureau of American Ethnology. Bulletin 111. United States Government Printing Office. Washington. 1932. Octavo of 197-ix pages. Illustrated. Paper. For sale by the Superintendent of Documents.

Yuman and Yaqui Music. By FRANCES DENSMORE. Smithsonian Institution. Bureau of American Ethnology. Bulletin 110. United States Government Printing Office. Washington. 1932. Octavo of 216-xvii pages. Illustrated. Paper. For sale by the Superintendent of Documents.

A Dictionary of the Atakapa Language. Accompanied by Text Material. By ALBERT S. GATSCHET and JOHN R. SWANTON. Smithsonian Institution. Bureau of American Ethnology. Bulletin 108. United States Government Printing Office. Washington. 1932. Octavo of 181-v pages. Paper. For sale by the Superintendent of Documents.

A Dictionary of the Osage Language. By FRANCIS LA FLESCHE. Smithsonian Institution. Bureau of American Ethnology. Bulletin 109. United States Government Printing Office. Washington. 1932. Octavo of 406-v pages. Paper. For sale by the Superintendent of Documents.

The Swimmer Manuscript. Cherokee Sacred Formulas and Medicinal Prescriptions. By JAMES MOONEY. Revised, completed and edited by FRANS M. OLBRECHTS. Smithsonian Institution. Bureau of American Ethnology. Bulletin 99. United States Government Printing Office. Washington. 1932. Octavo of 319-xvii pages. Paper. For sale by the Superintendent of Documents.

The Failing Heart of Middle Life. The Myocardosis Syndrome, Coronary Thrombosis, and Angina Pectoris. With a Section upon The Medico-Legal Aspects of Sudden Death from Heart Disease. By ALBERT S. HYMAN, A. B., M. D., F. A. C. P., Cardiologist, Beth David and Manhattan General Hospitals; Attending Physician and Cardiologist, Hospital for the Aged, etc. And AARON E. PARSONNET, M. D., F. A. C. P., Attending Physician and Cardiologist, Newark Beth Israel Hospital; Cardiologist, Evening Heart Clinic, Newark Beth Israel Hospital, etc. With a Preface by DAVID RIESMAN, M. D., Sc. D., F. A. C. P., Professor of Clinical Medicine, University of Pennsylvania School of Medicine. Philadelphia. F. A. Davis Company. 1932. Octavo of 538-xx pages. With 166 Illustrations. Some in Colors. Cloth. Price, $5.00 net.

Virginia Medical Monthly

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VOLUME 59 OCTOBER, 1932 No. 7

Editorial

The Richmond Meeting.

The Richmond meeting of the Medical Society of Virginia is the sixty-third meeting of this organization. Sixty-two times the medical men of this State have gathered in annual session in order to bring about higher standards of service to the sick and to conserve and advance the great principles of medical practice, to fortify and increase the strength of the medical profession as a body of scientific men, and to batter down the far-flung strongholds of disease and to fend off the sweeping march of untimely death.

One may properly be a bit careful in selecting opportunities to attend meetings at all times. Especially in this time of economic depression one may rightfully maintain the point that there have been too many meetings, too many organizations, too many hours and too much money spent in sitting in on the medical meetings and gatherings. Much of this over-organization and much of this over-lapping of meetings may be changed by the demands of economy and in the wise employment of one's time. There necessarily comes in times like this to each organization a certain falling off of attendance and a certain loss of membership. By this process, unneeded and superfluous organizations will ultimately cease to function. But just as truly as there have been too many medical organizations calling and demanding attendance, there are certain organizations that have been and will be of the utmost importance to attend, support and maintain. The strength and power of these essential medical organizations are dependent upon the continued support of the medical profession, individually and collectively—in good times and in bad times. If the need for such support is more important under one or the other of these economic states, it is in bad times that certain medical organizations need to function more effectively, more forcefully and more successfully.

Now, the fundamental need of medical organizations rests in the local, state, and national medical societies. By no other group of interlocked agencies can the great voice of medicine speak with more telling effect. Comment need hardly be continued to point to the importance of the coming meeting of the Medical Society of Virginia, which meets in Richmond, November 1-3. Members of the Society are urged to make the sacrifice to come to this meeting. The program offers a reasonable variety of medical and surgical subjects in the form of formal papers. Members are urged to peruse the list of subjects to be presented, as they are listed in this journal, and to make preparation to enter into the discussion of the papers. Members may reasonably hope to find in the symposium that is to be presented by selected speakers a group of questions in medicine that will serve as food for thought and as a review of an important group of conditions daily confronting the general practitioner and other medical groups of men in practice. Invited guests will bring messages of importance to practitioners. Members may expect to receive information and profit from

addresses of these distinguished speakers. Clinics and demonstrations on Tuesday will offer another opportunity to practitioners to witness and take part in practical treatment of medical problems that may have real value in daily work.

In addition, members attending the sessions will have the privilege of sitting in the new building of the Richmond Academy of Medicine and the Library of the Medical College of Virginia, which also houses the office of the Medical Society of Virginia. This building is a credit to these organizations and reflects the high purposes in the breasts of those who put over this accomplishment. Here members of the Medical Society may find the welcome of an abiding house. Here the members may feel that they will receive a hospitable welcome on every occasion. Here one will find a medical library of the day and also may visit the museum of interesting historic medical publications and old prints—a collection contributed by Dr. Joseph L. Miller, of Thomas, W. Va.

Ultimate Results for Operations on the Biliary Tract.

The above title directs attention to information upon a subject in which the general practitioner is necessarily deeply interested. Not only is he interested but he is eager to be able to reach the best opinion upon ultimate values of all procedures in practice, especially those involving serious risks of failure of success, of human life, and needless medical costs to the patient.

With such mental eagerness, one may read Judd and Priestley* touching the subject of surgical risks and surgical success in non-malignant biliary surgery. These operators working in a large clinic and enjoying opportunity of observing results in a large number of cases may be depended upon to reach reasonably accurate conclusions. Certainly such data as may be gathered under such conditions may serve as a measurement in evaluating surgical operations of unquestioned gravity. It should be further said that figures giving results of the Mayo Clinic represent results of the best sort in surgical practice. One may peruse this article to bring out experience of operations performed more than twenty years ago. As noted in all such figures, there may be missing links in the chain of statistical findings because of obvious defects in collection of data by questionnaires. Apparently every effort was made to secure reasonably accurate information. The data was culled from replies received from patients operated on at the Mayo Clinic for benign disease of the biliary tract in the years from 1907 to 1910, inclusive. From 1,652 inquiries, 606 usable replies were received. Of the 1,652 patients, 312 were dead in 1932—more than twenty-two years later. In 534 cases of cholecystitis with cholelithiasis, more than twenty years after operation, of the 376 having cholecystostomy 58.6 per cent were satisfactory, 24.4 per cent were unsatisfactory, and 17 per cent required re-operation; of the 100 having cholecystectomy 83 per cent were satisfactory and 17 per cent unsatisfactory; of the forty-three having choledochostomy and cholecystostomy 76.8 per cent were satisfactory, 16.3 per cent were unsatisfactory, and 6.9 per cent required re-operation; of fifteen cases of choledochostomy with or without cholecystectomy 86.6 per cent were satisfactory and 13.4 per cent were unsatisfactory. In seventy-two cases of cholecysitis without cholelithiasis, results reported more than twenty years after operation showed that in fifty cases of cholecystostomy 62 per cent were satisfactory, 26 per cent unsatisfactory, and 12 per cent required re-operations; in twenty-one cases of cholecystectomy 85.7 per cent were satisfactory, 14.3 per cent unsatisfactory; and one case of cholecystostomy and choledochostomy was 100 per cent satisfactory. These are very interesting figures and with a perusal of the article one may find much of interest in this retrospect in the surgical experience of more than twenty years ago.

In closing this comment, it is worthwhile to draw attention to the concluding paragraph of the article referred to. This directs attention to the experience in the matter of mortality in operations for chronic cholecystitis. At the Mayo Clinic during the year of 1931, cholecystectomy was performed in 579 cases of chronic cholecystitis with a mortality of 1.7 per cent.

Cholesterol of the Blood Plasma in Hepatic and Biliary Disease.

To probe the functions of the liver is a complicated schedule because the activities of the liver are varied and damage of one sort or another may have different standards of testing. This makes tests of liver functions uncertain. One may note with interest the summary of

*J. A. M. A., Vol. 99, No. 11, pg. 887.

Epstein's* observations on the cholesterol of the blood plasma in hepatic and biliary disease. The article is well worth reading. Epstein makes the point that improvement in accuracy of diagnosis and prognosis of various hepatic and biliary diseases is enhanced by means of a quantitative study of the blood cholesterol and cholesterol ester. The method is simple. It requires only 1 c.c. of the blood.

In obstructive jaundice, hypercholesteremia is found. According to Epstein, it roughly parallels the degree of obstruction. In degenerative diseases of the liver, a pronounced divergence between bilirubinemia and cholesteremia usually occurs—the more severe the damage to the liver the more the hypocholestemia. In atrophic cirrhosis of the liver (Laennec) cholesterol blood pictures remain normal and in cholecystitis and cholelithiasis with no obstruction, cholesterol figures are normal or insignificant.

Sir Ronald Ross.

Sir Ronald Ross is dead. He was one of the great benefactors of the human race.

For centuries on end, in tropical countries, in marshes and on the borders of tidal streams and sluggish currents of delta outlets of rivers, malarial fever had cursed the inhabitants. Few countries had suffered its dire blight more than Italy—especially noteworthy, historically, was its deadly effect in the Roman Campagna. The Southern States of America, especially along the swamps and low coastal areas also suffered. A geographical distribution of malaria would mark areas of swamp country the world over in Europe, Asia, Africa, Australia, and the Americas.

Virginia, with its tidal inlets and low country along its rivers suffered with malaria since the early days of the colonial settlements. The disease affected the economic and social well-being of its people. Malaria influenced the location of the settlements and determined the habitations of its people. Malaria influenced the movement of its business and commercial life. In Richmond, as in other locations, malaria changed the boundaries of the town and effected alterations in the site of residences. Malaria pushed cities back from the water's edge and from "miasmic" lowground to the hills. After twilight, malaria for centuries stalked its ghastly shape over the low country and sickened people with its chills and fevers and its chronic pathology.

*Epstein—**Arch. Int. Med.**, August, 1932, pg. 203.

Ronald Ross knifed this prowling nocturnal, malevolent, jungle-born menace of health and happiness.

Laveran, in 1880, working in Algeria, had seen the living parasite under the miscroscope and had communicated his observations to the Paris Académie de Médicine. In 1885 Italian pathologists confirmed Laveran's studies and began to elaborate investigations on the life cycle of the malarial parasites in the human blood. Golgi, Marchiafarr, Celli and other Italians proved the fact that the periodical febrile paroxysm corresponds with the development of the organisms in human blood and, besides, they pointed out the different forms: tertian, quartan and malignant types. But the missing link in the chain was yet wanting—the mode of transmission and the life of the parasites outside of the human.

In 1894, by analogy, based on his experience in his discovery of the cause of filariasis, Sir Patrick Manson suggested the mosquito as the intermediate host. Following this suggestion, Major Ronald Ross, in 1895, found that "if a mosquito sucked blood containing the parasites they soon began to throw out flagella which broke away and became free." In 1898, Ross discovered peculiar pigment cells (aestivo-autumnal) within the stomach wall of the mosquitos which had been fed on malarial blood. Ross discovered that only mosquitos of the genus Anopheles had these cells and that they did not get them when feeding on healthy blood.

Ross, working on the problem in relation to the malaria of birds, found the life-history of malarial forms within the body of the mosquito. He watched with amazing scientific vision these forms increase in size in the body of the mosquito; he saw them divide and become filiform spores; he noted the rupture and the pouring out of the multitudinous progeny into the body of the mosquito; he beheld the foregathering of the numerous spores within the salivary glands and witnessed their passage down the salivary ducts and along the salivary groove of the mosquito into the punctured human body. Ross thus tracked the malarial parasite from malarial infected man through the body of the mosquito to man. Thus, eventually, with the vast amount of scientific studies subsequently made, one of the greatest medical discoveries of the ages was accomplished.

One of the confirmatory experiments was

conducted by Dr. Sanborn and Dr. Low. In 1900, acting under direction of the London School of Tropical Medicine, they resided in the most malarious district of Roman Campagna during the "height of the season." They lived there from July to October 19th in an especially constructed hut. The one precaution used was to confine themselves in the screened hut between sunset and sunrise. All escaped malaria while it was "raging" in the neighborhood. Mosquitos caught at that time were sent to London and produced malaria in persons who submitted themselves to the bite of these insects at the London School of Tropical Medicine.

In due course these revealing scientific facts, together with the use of quinine, enabled countries and regions long infested with the recurring plague of malaria to rid swamp and low-ground areas of mosquitos and has largely blotted out the malaria.

To this benefactor of mankind, Sir Ronald Ross, the medical profession in the State of Virginia may justly pay homage. For generations, malaria stigmatized Virginia and handicapped its people. But today, within the quarter of a century since the revelations of Ross and other workers in this disease, the State, along its water courses and low countries, is free of malaria. His memory may be rightly commemorated by this State. Ross' work was recognized by his native country. He was elected in 1901 fellow of the Royal Society; in 1911 he was knighted and many other honors were heaped upon him.

After five years of invalidism from paralysis, Sir Ronald Ross died in September, just as a fund was being collected by public subscription to protect him from poverty, to which he had drifted while doing scientific work.

Department of Clinical Education
OF THE MEDICAL SOCIETY OF VIRGINIA

Tenth Post-Graduate Clinic at University Hospital.

The regular fall clinic at the University of Virginia Hospital, to be held on Thursday and Friday, October 13th and 14th, offers the following program:

THURSDAY, OCTOBER 13, 1932

10:00 A. M.—Treatment of Varicose Veins, Dr. E. C. Drash
11:00 A. M.—Vaginal Hemorrhage—Dr. J. M. Nokes
2:00 P. M.—Problems Peculiar to Pediatrics, Dr. W. W. Waddell
3:00 P. M.—Ward Rounds

Evening Program, 8:00 P. M. Open Discussion
Topics to be submitted by guests

FRIDAY, OCTOBER 14, 1932

9:00 A. M.—Symposium on Headache:
Eye—Dr. H. S. Hedges
Sinus—Dr. F. D. Woodward
Neurological—Dr. D. C. Wilson
Medical—Dr. H. B. Mulholland
1:30 P. M.—Management of Fractures of the Wrist, Dr. R. V. Funston
3:00 P. M.—Ward Rounds.

Attendance upon the University clinics has been maintained at a level that demonstrates a genuine appreciation of this opportunity. During the ninth series of clinics in May sixty-nine physicians were registered. They came from forty-seven places, from Colonial Beach on salt water to Norton far in the mountains. Of course, every physician in Virginia is cordially invited to the clinic.

Another Flourishing Group of Prenatal and Postnatal Courses

The enrollment of seventy-five physicians for Dr. M. E. Lapham's second circuit of classes in prenatal and postnatal care constitutes an even more auspicious beginning than that of the first circuit. The result is a tribute to the energetic and enthusiastic efforts of local committees of leaders in each center. Not only in the matters of enrollment and attendance but also in respect to the supplying of necessary clinical material, almost the only point of criticism made by members of previous classes, the present groups are apparently more effectively organized; and the natural expectation is that beneficial results will be correspondingly increased.

Complete data on the five centers of the second circuit through the first three meetings follow:

FARMVILLE (Amelia, Appomattox, Buckingham, Charlotte, Cumberland, Goochland,

Lunenburg, Nottoway, Powhatan, and Prince Edward Counties)—Previously reported enrollments: Drs. J. R. Bailey, J. M. Habel, T. G. Hardy, T. E. Knight, Ray A. Moore, G. L. Morriss, J. Weldon Smith, Joseph H. Smith, W. E. Smith, C. S. Stone and J. P. Trent. Additional enrollments: Drs. J. B. Bailey, W. A. Brumfield, E. L. Kendig, W. D. Kendig, C. M. Nicholson, E. B. Nuckols, Dwight Rivers, Jack Spencer, P. E. Tucker and H. E. Whaley. Visiting physicians: Drs. J. F. Alsop, John A. B. Lowry, W. R. Martin, N. P. Snead and C. W. Tucker. Total enrollments, 21. Average attendance, 22. Percentage of attendance of those enrolled, 84.1.

LAWRENCEVILLE (Brunswick, Dinwiddie, Greenesville and Lunenburg Counties)—Previously reported enrollments: Drs. T. H. Anderson, F. N. Mallory, R. H. Manson, C. E. Martin, M. H. Tredway, J. B. Vaiden and T. H. Valentine. Additional enrollments: Drs. B. J. Atkinson, L. A. Law and G. M. Naff. Visiting physicians: Drs. W. C. Harmon and J. M. Dean. Total enrollments, 10. Average attendance, 9. Percentage of attendance of those enrolled, 80.0.

ETTRICK (for colored physicians)—Previously reported enrollments: Drs. F. L. Brown, W. F. Clarke, J. B. Darden and W. B. Greene. Additional enrollments: Drs. E. B. Harris and U. S. McCoy. Visiting physicians: Drs. C. A. Robbins, G. H. Francis and H. A. Callis. Total enrollments, 6. Average attendance, 7.7. Percentage of attendance of those enrolled, 100.0.

PETERSBURG (Dinwiddie, Nottoway, Prince George, Surry and Sussex Counties)—Previously reported enrollments: Drs. Wright Clarkson, Joel Crawford, G. S. Fultz, S. E. Gunn, J. L. Hamner, J. H. Hargrave, R. T. Hawks, C. T. Jones, H. C. Jones, J. Bolling Jones, C. W. Lynn, Ruth S. Mason-Grigg, Randolph McCutcheon, M. F. McKinney, W. A. Reese and E. W. Young. Additional enrollments: Drs. T. G. Pretlow, J. E. Smith, H. M. Snead, W. C. Webb and F. J. Wright. Visiting physicians: Drs. P. L. Hill, Jr., F. M. Howell, W. P. Hoy, S. B. Perry, Mason Romaine, H. G. Stoneham and W. C. Carrarras. Total enrollments, 21. Average attendance, 20.0. Percentage of attendance of those enrolled, 73.0.

RICHMOND (Chesterfield, Hanover and Henrico Counties)—Previously reported enrollments: Drs. J. J. Anderson, B. B. Bagby, Greer Baughman, H. A. Bullock, R. S. Faris, J. B. Fisher and H. M. Richardson (jointly), Alexander McLeod, A. C. Monroe, W. H. Parker, A. E. Turman and J. W. Turman. Additional enrollments: Drs. Joseph Bear, M. L. Boyle, J. A. Gallant, P. D. Lipscomb, L. C. Lush and H. C. Rucker. Visiting physicians: Drs. R. D. Bates, E. C. Cobb, T. F. Gill, F. E. Hinchman, H. B. Hinchman, R. C. Hooker, V. L. Litsinger, Barney Plotnick, and J. K. Richardson. Total enrollments, 17. Average attendance, 26.0. Percentage of attendance of those enrolled, 82.3.

GEO. W. EUTSLER,
Secretary.

Scheduled Meetings

Dr. Warren T. Vaughan, Chairman of the Program Committee, announces the following list of out-of-town speakers before THE RICHMOND ACADEMY OF MEDICINE for the remainder of this year:

October 11th—Dr. Arthur F. Coca, Professor of Immunology, Cornell, "Some Recent Advances in the Practical Applications of Immunology."

October 25th—Dr. Joseph L. Miller, Professor of Medicine, University of Illinois, Graduate School of Medicine, "Pathology, Etiology and Treatment of Chronic Rheumatism."

November 22nd—Dr. Harlow Brooks, Emeritus Professor of Medicine, University and Bellvue Medical College, New York, "The Medicine of the American Indian."

December 13th—Dr. C. P. Howze, Washington, D. C., "Conservative Renal Surgery." Dr. Charles C. Haskell, New York, "Are Digitalis Preparations Stable?"

All meetings will be held in the Richmond Academy of Medicine Building, at 1200 East Clay Street.

Proceedings of Societies

The Augusta County Medical Association

Held its regular business and social meeting in Staunton, August the 3rd, at which time Drs. F. B. Coleman, of Stuarts Draft and G. Edmund Stone, of Staunton, were elected members. Delegate was named to the Richmond meeting of the State Society at this time.

In the election of officers for the ensuing year, Dr. Glenn C. Campbell, Staunton, was named president, and Dr. Horace T. Hawkins,

Waynesboro, Dr. J. L. Alexander, Staunton, and Dr. H. M. Wallace, Staunton, vice-presidents. Drs. W. F. Hartman, Swoope, and T. M. Parkins, Staunton, were re-elected secretary and treasurer, respectively.

The Mecklenburg County Medical Society

Held a splendid meeting at South Hill on September 8th. Interesting case reports of Acute Abdomen and Appendicitis were presented by Drs. W. W. Wilkinson, LaCrosse, and A. T. Finch, Chase City. Dr. C. V. Montgomery gave an interesting report of a case of Emphysema in a child. The discussions of these reports were timely and interesting.

The following officers were elected for 1933: President, Dr. W. L. Varn, South Hill; vice-president, Dr. L. H. Hoover, Clarksville; and secretary-treasurer, Dr. A. T. Finch (re-elected), Chase City. Dr. Norfleet Carter, Boydton, was elected alternate delegate to the Medical Society of Virginia, in the place of Dr. B. S. Yancey who had moved out of the county.

News Notes

Richmond Meeting of the State Society.

Everywhere throughout Virginia interest should be centering at this time in the sixty-third annual meeting of the Medical Society of Virginia in Richmond, November 1st, 2nd and 3rd. This is truly an anniversary meeting for it was in Richmond on November 2, 1870, that a body composed of ninety-two men met and organized the present society which has now grown to a membership of over 1,800. They threw the torch and we should keep faith with that earnest body of men. Make your plans to attend and help carry out the high ideals they had for the medical profession of this State.

A number of interesting clinics will be held for members on Tuesday afternoon, the feature clinic being the one on Arthritis by Dr. Robert B. Osgood, prominent orthopedic surgeon of Boston. Dr. William Minor Dabney, of Baltimore, is the other invited guest. Both he and Dr. Osgood will present papers at the general session of the Society on Tuesday evening, November 1st. The scientific and commercial exhibits will furnish much of interest and arrangements are being made to have all papers fully discussed so as to get all possible angles on the subjects to be considered.

We regret that not enough interest was manifested in the "Question Box" to justify the Program Committee in allotting time to such a feature.

The number of delegates already announced for the House of Delegates indicates that the business affairs of the Society will have a fair degree of attention.

The Council of the Society at its mid-winter meeting, in accepting the invitation of the Richmond Academy of Medicine to meet in Richmond, this year, did so with the recommendation that the members of the Society should take care of themselves in the matter of entertainment. For this reason, no public entertainments have been provided for the men other than a golf tournament, which is open to all members, this to be held on Tuesday, November the 1st.

The members of the Woman's Auxiliary of the local society are preparing to look after the visiting ladies and do what they can for their pleasure. All visiting ladies, whether or not members of the Auxiliary are invited to its meetings and the entertainments prepared for the ladies.

Delegates to Richmond Meeting.

Component societies which have not yet reported names of their delegates and alternates for the Richmond meeting of the Medical Society of Virginia are urged to send them at once to the Executive Secretary at 1200 East Clay Street, Richmond. We are anxious to have a full representation from all component societies in our House of Delegates.

The following is a list of delegates and alternates whose names have been reported to this time:

Delegate	Society	Alternate
	ACCOMAC	
Dr. O. R. Fletcher		Dr. John W. Robertson
	ALBEMARLE	
Dr. T. H. Daniel		Dr. D. C. Smith
Dr. Cuthbert Tunstall		Dr. W. W. Waddell, Jr.
	ALLEGHANY-BATH	
Dr. R. A. Warren		Dr. M. B. Jarman
Dr. W. P. Gilmer		Dr. L. E. Hayes
	AMELIA	
Dr. J. M. Habel		Dr. H. C. Rucker
	AUGUSTA	
Dr. J. E. Womack		

Delegate	Society	Alternate
	FAIRFAX	
Dr. C. A. Ranson		Dr. Sigmund Newman
	FAUQUIER	
Dr. Richard Mason		Dr. Wade C. Payne
	FLOYD	
Dr. J. M. Harman		Dr. F. C. Bedsaul
	FREDERICKSBURG	
Dr. J. M. Holloway		Dr. R. J. Payne
Dr. L. F. Lee		Dr. H. W. Patton
Dr. Roderick Dew		Dr. Rogers N. Harris
Dr. W. A. Harris		Dr. A. M. Arritt
	ISLE OF WIGHT	
Dr. E. M. Easley		Dr. Rea Parker
	LEE	
Dr. G. B. Setzler		Dr. J. B. Muncy
	LYNCHBURG ACADEMY	
Dr. D. P. Scott		Dr. D. M. Thomasson
Dr. H. B. Spencer		Dr. R. D. Caldwell
	MECKLENBURG	
Dr. W. W. Wilkinson		Dr. G. Norfleet Carter
	NELSON	
Dr. D. C. Wills		Dr. F. M. Horsley
	NORFOLK	
Dr. Jos. D. Collins		Dr. Julian L. Rawls
Dr. P. St. L. Moncure		Dr. M. S. Fitchett
Dr. W. P. McDowell		Dr. H. L. Myers
Dr. E. C. S. Taliaferro*		Dr. Claiborne Willcox
Dr. Walter B. Martin		Dr. F. H. Redwood
	NORTHAMPTON	
Dr. John R. Hamilton		Dr. J. W. Jackson
	NORTHERN NECK	
Dr. G. H. Steuart		Dr. H. J. Edmonds
Dr. W. B. Richardson		Dr. R. L. Hudnall
Dr. W. N. Chinn		Dr. E. T. Ames
Dr. B. A. Middleton		Dr. V. L. Litsinger
	NORTHERN VIRGINIA	
Dr. Allen T. Hawthorne		Dr. C. O. Dearmont
Dr. R. W. Stoneburner		Dr. P. W. Boyd
	PITTSYLVANIA CO. AND DANVILLE	
Dr. P. W. Miles		Dr. W. W. Robertson
	POST-GRADUATE	
Dr. W. C. Harmon		Dr. F. N. Mallory
Dr. H. C. Jones		Dr. Meade Edmunds
Dr. B. J. Atkinson		Dr. G. M. Naff
Dr. W. W. Bennett		Dr. J. A. B. Lowry
Dr. D. L. Elder		Dr. J. M. Bailey
Dr. W. D. Kendig		Dr. H. E. Whaley
Dr. B. H. Knight		Dr. W. W. Seward
Dr. Joel Crawford		Dr. W. D. Prince
	PRINCE EDWARD	
Dr. Jos. H. Smith		Dr. Ray A. Moore
	RICHMOND ACADEMY	
Dr. J. H. Smith		Dr. I. A. Bigger
Dr. R. F. Gayle		Dr. D. B. Cole
Dr. J. M. Hutcheson		Dr. A. I. Dodson
Dr. W. B. Blanton		Dr. C. Williams
Dr. W. H. Higgins		Dr. Joseph Geisinger
Dr. Dewey Davis		Dr. Randolph Anderson
Dr. St. Geo. Grinnan		Dr. T. D. Jones
Dr. Fred Hodges		Dr. A. C. Monroe
Dr. L. T. Price		Dr. H. R. Masters
	ROANOKE ACADEMY	
Dr. T. J. Hughes		Dr. E. F. Flora
Dr. S. B. Cary		Dr. Frank A. Farmer
Dr. T. A. Kirk		Dr. L. D. Keyser
	ROCKBRIDGE	
Dr. F. L. Thurman		Dr. E. P. Tompkins
	SOUTHAMPTON	
Dr. R. H. Cobb		Dr. John W. Smith
	SOUTHWESTERN	
Dr. L. F. Cosby		Dr. S. H. Yokeley
Dr. T. K. McKee		Dr. A. B. Graybeal
Dr. E. M. Chitwood		Dr. C. F. Graham
Dr. R. H. Harrington		Dr. H. T. Smith
Dr. A. B. Woolwine		Dr. W. H. Hale
Dr. R. H. Woolling		Dr. W. R. Cushing
Dr. J. L. Early		Dr. A. M. Showalter
Dr. B. F. Eckles		Dr. W. R. Gardner
Dr. W. C. Caudill		Dr. M. C. Newton
	TAZEWELL	
Dr. Isaac Peirce		Dr. J. W. Shawver
	WISE	
Dr. F. S. Givens		Dr. J. B. Wolfe

*Has died since appointment.

Golf Tournament for Members of State Society.

On the first day of the annual meeting of the State Society, Tuesday, November 1st, there will be a Golf Tournament for members of the Society at the Country Club of Virginia. This will be a 36-hole Medal Play Tournament—18 holes to be played in the morning, starting at 10:00 A. M., and 18 holes in the afternoon, starting at 2:00 P. M. Players will be guests of the Richmond Academy of Medicine for lunch at the Club at 1:00 P. M. Appropriate trophies will be given for the low gross and low net scores and will be presented at the Public Meeting on Tuesday evening.

Those wishing to participate in the Tournament should send their names with Club Handicaps to Dr. Thomas W. Murrell, chairman of the Golf Committee, 17 East Grace Street, Richmond. Upon request, provision will be made for transportation to the Club. Other members of the Golf Committee are Drs. R. C. Bryan and Paul W. Howle.

Notice.

Dr. E. L. Kendig, Victoria, Va., has requested us to publish the following notice:

There will be a meeting of those present who are interested in forming an association of rural practitioners to cooperate with the State Society at Society Headquarters at noon on the first day of the meeting of the coming State Society. Those present will arrange for an organization meeting later during the session of the State Society and appoint such

committees as may be necessary for this purpose.

Notice of the organization meeting will be put on the bulletin.

The Virginia Pediatric Society

Will have its annual luncheon meeting on Wednesday, November 2nd, during the annual meeting of the Medical Society of Virginia. The luncheon will be at 1:15 P. M. at Westmoreland Club. Reservations for the luncheon, which will be $1.00 a plate, should be made through Dr. N. Thomas Ennett, chairman of the Program Committee, 1927 Hanover Ave., Richmond.

Professor H. S. Jennings, of Johns Hopkins Hospital, Baltimore, is the invited guest speaker for the luncheon. Professor Jennings is probably the foremost authority in this country on the influence of heredity. Medical men everywhere are interested in the newer knowledge as to hereditary influence and, as far as accommodations of the Club will permit, the privilege of hearing him will be extended members of the Medical Society of Virginia in general.

Dr. St. Geo. Grinnan and Dr. James B. Stone, both of Richmond, are president and secretary, respectively, of the State Pediatric Society.

The Southern Medical Association

Is to have its annual meeting in Birmingham, Ala., home of the Association, November 16th-18th. Judging by room reservations already made, there will be a record attendance, with representation from all parts of the United States. Dr. L. J. Moorman, Oklahoma City, is president, and Mr. C. P. Loranz, Birmingham, secretary-manager.

With the large number of sections of the Association and the affiliated societies which meet conjointly, there will be a varied enough program to satisfy the tastes of all. A warm welcome is extended to all members.

New Building of the Richmond Academy of Medicine Dedicated.

The dedication exercises incident to the formal opening of the Richmond Academy of Medicine Building and the Joseph L. Miller Library, at 1200 East Clay Street, Richmond, Va., were held on the evening of September the 20th. About two hundred doctors attended these exercises.

From 7:00 to 8:30 P. M., there was a dinner in honor of the invited guests and Dr. Joseph L. Miller, of Thomas, W. Va., donor of the Miller Library. This was in the banquet hall of the building. The members and guests then adjourned to the auditorium for the dedicatory exercises, Dr. R. Finley Gayle, Jr., president, presiding. After the invocation by Rev. J. J. Scherer, greetings were extended by Honorable John Garland Pollard, Governor of Virginia. Dr. Stuart McGuire, chairman gave a short report from the Building Committee. The feature addresses of the evening were "Libraries, the Storehouse for Human Experience" by Dr. Edward H. Cary, of Dallas, President of the American Medical Association, and "The Oldest Medical Library in the United States" by Dr. Francis R. Packard, of Philadelphia, Editor of *Annals of Medical History*.

During the evening, the handsome building, which has been most attractively furnished, was open to inspection. The Miller Library, with its unique collection of old medical prints and curios, is a work of art as, in fact, is the whole building.

St. Luke's Hospital Re-Opens its Obstetrical Department.

On July 1st, St. Luke's Hospital, Richmond, Va., re-opened its Obstetrical Department which has been closed since the death of Dr. Virginius Harrison, June 6, 1925. This has been done at the earnest insistence of many friends and patrons of St. Luke's, who had to go elsewhere for this service. The physical changes were effected by closing a hall of the north end of the main building with double doors which makes a distinct unit for this department cut off from the rest of the hospital. It consists of a delivery room, a sterilizing room and a nursery. These are all furnished with new modern equipment.

The department is under the immediate charge of Dr. H. Hudnall Ware, Consulting Obstetrician, who has inaugurated its technique and will supervise its professional management.

In re-establishing this department the hospital will be able to give personal training in obstetrics to its nurses who now go elsewhere for this part of their instruction.

New Medical Director of Schools.

Dr. Charles L. Outland was recently elected Medical Director of the Public Schools of Richmond and entered upon his duties about the middle of September. He succeeded Dr.

N. Thomas Ennett who did not apply for reappointment.

Dr. Outland is secretary of the Alumni Association of the Medical College of Virginia and is also well known in health circles, having been medical inspector for the Richmond City Health Bureau for the past six years and for sometime associate in Public Health at the Medical College of Virginia.

The American College of Surgeons

Will hold its twenty-second annual Clinical Congress in St. Louis, October 17th-21st, with headquarters at the Jefferson Hotel. Dr. Franklin H. Martin, Director-General of the College, informs us that an instructive program of operative clinics has been prepared by the local Committee on Arrangements of which Dr. Evarts A. Graham is Chairman.

Hospital standardization conferences under the direction of Dr. Malcolm T. MacEachern will be held during the first four days. Four special programs have been prepared dealing respectively with fractures, curability of cancer, industrial medicine and traumatic surgery, and the teaching of surgery and the surgical specialties. Medical motion pictures will be on daily exhibition.

On Monday evening the president, Dr. Allen B. Kanavel, will present his retiring address, "Intangibles in Surgery," and turn over the robes of office to the incoming president, Dr. J. Bentley Squier, who will deliver his inaugural address, "Fundamentals of Special ism." The John B. Muhphy oration in surgery entitled, "Pillars of Surgery," will be delivered by Sir William I. DeCourcy Wheeler, M. S., F. R. C. S. I., Dublin, Ireland.

On Wednesday evening a Community Health Meeting will be held with brief instructive talks dealing with personal health and hospital matters.

On Friday evening the convocation will be held for the incoming Fellows, and the Fellowship address on "Some New Things in Physics" will be delivered by Robert Andrews Millikan, Ph.D., LL.D., Sc.D., Nobel Laureate. Dr. J. Bentley Squier will deliver the presidential address entitled, "The American College of Surgeons—Twenty Years of Ambitious Effort."

Among the features of the evening meetings will be the oration on fractures by Dr. Philip D. Wilson and the oration on industrial medicine and traumatic surgery by Dr. Frederic A. Besley. A special program on ophthalmology and otorhinolaryngology will be held at the Statler Hotel and there will be clinics on these subjects during the entire week in the St. Louis hospitals.

Among the other foreign visitors will be Sir George Lenthal Cheatle, London, and Dr. José Goyanes, Madrid.

News Notes From the Medical College of Virginia.

The ninety-fifth session of the Medical College of Virginia formally opened at 12:00, Wednesday, September 14th. At the convocation exercises the four deans of the institution, the president of the student body, the secretary of the Y. M. C. A., treasurer of the college, and Dr. Stuart McGuire, chairman of the executive committee of the Board of Visitors, made brief remarks in greeting students. President Sanger presided.

Enrollment in the several schools is about normal for the current year. It was expected that the number of students in the first year of the new four year course in pharmacy would be less than usual. Enrollment last fall, which was the last of the three year course, was unusually large.

Dr. Arthur Little has joined the staff of the school of dentistry of the Medical Colege of Virginia, succeeding Dr. Merrill G. Swenson as professor of prosthetic dentistry. Dr. Swenson has resigned to accept a position in New York University school of dentistry.

For the past five years Dr. Little has been doing research in his special field of dentistry. He has also read papers and given clinics in many parts of the country during this period.

Both in private practice and in the teaching of prosthetic dentistry Dr. Little has had wide experience. He is a graduate of the University of Minnesota college of dentistry. For a number of years he has been a resident of Pennsylvania and is licensed to practice dentistry there.

A gain of practically 5,000 patients was noted in the dental infirmary last year. The number of patients handled for the fiscal year ending June 30, 1932, was 19,024 while for the same period of 1931, 14,193 visits were made to the infirmary. In addition to the dental services rendered in the infirmary the same services were also rendered in the three hospitals of the college. In these hospitals 2,386 patients, involving 3,524 operations, were cared for. The largest dental service was at St.

Philip's Hospital where 1,980 patients were treated during the year. In the children's dental clinic 3,197 visits were made and a total of 5,953 dental operations performed.

An increase of more than 1,600 in the number of patient visits made to the out-patient department of the college was noted during the month of August in comparison with August of last year. During the month 5,499 visits were made to the clinic, the maximum number of patients treated in any one day being 267 and the minimum 136. Of the total number treated 41 per cent were white and 59 per cent colored, the percentage male and femal being fifty each.

The new library of the college was ready for the use of the students at the opening of the session. Not only does the new library offer more complete facilities for study, but the basement has been given over to the college Y. M. C. A. for recreational activities. An adequate place for the Y. M. C. A. has been a very real need of the college for some time.

Dr. A. C. Broders, an alumnus of the school of medicine, and pathologist at the Mayo Clinic, spent some time here during his vacation in looking over the work of the institution.

Dr. T. M. Barber, Charleston, W. Va., a graduate in the class of 1917, visited the college recently. Dr. Barber was very pleased to see the progress the college had made since he was here.

Dean Harry Bear of the school of dentistry attended the meeting of the American Dental Association, Buffalo. N. Y., September 13th to 16th.

Dr. and Mrs. Augustine Tucker

And their younger children sailed for China, the first of September, after a furlough of a year in this country. Dr. Tucker, who is an alumnus of the University of Virginia, Department of Medicine, is in charge of St. Luke's Hospital, at Shanghai, China.

American Board of Obstetrics and Gynecology to Hold Examinations.

The next written examination of the American Board of Obstetrics and Gynecology will be held on Saturday, October 22nd, at 2 P. M., in nineteen different cities of the United States and Canada. In order to reduce traveling expenses for candidates special arrangement may be made through the Secretary for taking the written examination at any city other than those regularly specified where there is a Diplomate who can be empowered to conduct the examination. This arrangement does not apply to the general, clinical examination.

The next general, oral and clinical examination, is to be held in conjunction with the meeting of the Pacific Coast Society of Obstetrics and Gynecology at Los Angeles, Calif., on December 7th, provided there are sufficient applicants.

The only reduction in railroad fares that will be available will be possible seasonal or round trip special rates. Information regarding this should be obtained from any railroad agent. The candidates will have the opportunity also of attending the scientific sessions of this Society, as the examination is scheduled for the day preceding the opening of the session.

Applications for these examinations should be filed immediately. Lists close for Group B applicants (see booklet) on October 5th, and for Group A applicants on November 15th.

For application blanks and other information, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, Pa.

Dr. R. J. Payne,

Fredericksburg, Va., entered upon his duties as mayor of that city, on September 1st.

Married.

Dr. Norman Walter File, Lynchburg, Va., and Miss Julia Blythe White, Alexandria, Va., in New York City, September 7th.

Dr. Charles Harold Spiggle, Strasburg, Va., and Miss Ann Margaret Chiles, July 20th.

Dr. Nathan Palmer Fitts, formerly of Markham, Va., but now of Williamsburg, Va., and Miss Lucille Branderberger, St. Louis, on July 12th.

Dr. Robert B. Cralle, Jr.,

An alumnus of the Medical College of Virginia in the class of '31, recently completed his interneship at the Memorial Hospital, Richmond, and has opened his office for general practice in his home town, Farmville, Va.

Dr. Harloe Bailey,

Who interned last year at the Iowa Methodist Hospital, has opened his office for gen-

eral practice in Tazewell, Va., Dr. Bailey received his degree in medicine from the University of Virginia in 1931.

Dr. Chester Stutsman,

Of the class of '31, University of Virginia, Department of Medicine, who interned last year at the Church Home and Infirmary in Baltimore, is now at Barnes Hospital, St. Louis.

The Southeastern Surgical Congress.

The attention of the medical profession is called to the announcement of the Fourth Annual Assembly of the Southeastern Surgical Congress which will be held in Atlanta, Ga., March 6, 7 and 8, 1933—three full days. BEGIN PLANS NOW TO ATTEND. The same high class program which characterized the second and third assemblies will be provided; also clinics will be conducted by some of the speakers. There will be an additional day to this Congress, with additional speakers.

For further information, write the executive secretary, Dr. B. T. Beasley, 1018 Doctors Building, Atlanta, Ga.

Dr. Gilbert O. Crank,

Who has been practicing for sometime at Lawton, W. Va., has located at Maurertown, Va. Dr. Crank is an alumnus of the Medical College of Virginia in the class of '16.

Dr. Warren T. Vaughan,

Richmond, Va., recently returned from Kalamazoo, Mich., where, by invitation, he gave several talks before the Michigan State Medical Society on Allergy. Dr. Vaughan recently addressed the Columbia, S. C., Medical Society also on a phase of this subject.

Dr. Roger L. Creekmur,

Richmond, Va., announces that he has moved his offices to 1100 West Franklin Street, this city.

Drs. Sexton and Dunkley Associated.

Dr. Roy Lyman Sexton, Washington, D. C., announces that Dr. Richard E. Dunkley will be associated with him in the practice of Internal Medicine. Their offices are at 1801 Eye Street, Northwest.

Dr. B. K. Weems,

Who graduated from the University of Virginia, Department of Medicine in 1931, and served his interneship at Elizabeth Buxton Hospital, Newport News, Va., the following year, has recently located in Waynesboro, Va., where he will be engaged in general practice.

Dr. A. P. Traynham,

Richmond, Va., has been reappointed coroner of Henrico County, for a term of four years beginning September 1st. This begins his third term in office. Dr. Traynham's position also carries with it the duties of jail physician.

Dr. A. T. Finch,

Chase City, Va., was recently installed as commander of the Hester-Bryant Post, No. 43, American Legion, at the meeting in that city.

Dr. D. Lane Elder

Has been elected mayor of Hopewell, Va., for a term of two years. Dr. Elder has served as mayor of Hopewell for ten years and as councilman for two additional years.

Dr. Tyler R. Boling,

Of the class of '31, Medical College of Virginia, has located for general practice at Burkes Garden, Va. He was stationed last year at the U. S. Marine Hospital, Norfolk, Va.

Mental Hygiene in California.

California had in its public schools more than 13,600 mentally retarded children at the time of a recent mental-hygiene survey. More than 5,700 of these had intelligence quotients below 70 and might be considered feebleminded, according to the Bulletin of the California Conference of Social Work. Of thirty-eight school systems specially investigated during the survey, twenty-six provided special classes for the training of retarded children. The committee appointed by the State Department of Social Welfare to direct the survey recommended that every school system having more than ten children whose low intelligence makes them classroom problems, should appoint a specially trained teacher for the group, the State to give financial aid when the community resources are insufficient for the purpose. It also recommended the establishment of school clinics, vocational guidance work, and the employment of visiting teachers.

Hourly Nursing Service.

The Private Duty Nurses' Club, of Richmond, Va., announces the inauguration of an Hourly Nursing Service, in which its members are subject to call for service in all branches of the work that can be adequately performed in the home, at the following rates: $1.50 for the first hour or less, and 50 cents for each additional hour or fraction thereof.

The Club realizes that due to the present economic situation there is a pressing need for

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a service of this kind in Richmond, which has heretofore been furnished only by the I. V. N. A. The adoption of a similar movement will render a distinct service to the people who do not care for or cannot afford a full time nurse. It will also help to solve the unemployment situation among members of the Private Duty Nurses' Club.

For information, dial 3-1656. (*Adv.*)

Wanted—

New location by physician with twenty-three years of Hospital, General Practice and Military Service. Licensed in Virginia and West Virginia. Address "*Physician*," care the VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond, Va. (*Adv.*)

Wanted—

Position as technician in hospital or physician's office. College graduate. Laboratory training at University of Virginia Hospital. Address "Miss R. S.," 1221 Wasena Terrace, Roanoke, Va. (*Adv.*)

Wanted—

A young active physician for a rural practice in Northern Virginia, fifty miles from Washington, D. C. Very small town, large territory, much hard work, good income, nothing to sell.

In answering, state age, school and year of graduation, married or single, number of children with ages, religion, native State, whether or not licensed in the State of Virginia. Address Box 222, Warrenton, Va. (*Adv.*)

For Sale—

McCaskey's Doctor's Record Cabinet. Slightly used. Capacity several hundred patients. Very good for office practice. Cost $125.00; will sell for $25.00. Free delivery in Richmond. Reply to No. 361, care this journal. (*Adv.*)

Obituary Record

Dr. Edwin M. Sneed,

Of Stafford C. H., Va., was found dead in a swampland ravine near Toano, Va., on September 13th. He had been visiting his son, Dr. A. M. Sneed, at Toano, and disappeared following a squirrel hunt on the 10th. Although over a hundred men searched the woods, his body was not found until the following Tuesday. Dr. Sneed was a native of Albemarle County and was seventy-six years of age. He had been a member of the Medical Society of Virginia for forty-two years. Dr. Sneed is survived by his wife, a daughter and two sons.

Dr. Lomax Plater Tayloe,

Vienna, Va., died at his home in that place September 12th and was buried in Arlington Cemetery. He was a native of Orange County, Va., and fifty-four years of age. After attending the University of Virginia, he studied medicine at the Medical College of Virginia, from which he obtained his medical degree in 1912. He had been a member of the Medical Society of Virginia for some years and served in the Medical Corps of the Army during the World War. He is survived by his wife, several sisters and a brother.

Dr. Junius Floyd Lynch,

At one time commander of the American Legion, Department of Virginia, died at his home in Norfolk, Va., September 15th, after having been in bad health for several months. Dr. Lynch was born in Alabama nearly sixty-seven years ago. He studied medicine at the Medical College of Virginia, from which he graduated in 1888. He located in Norfolk in 1896 and had since taken a prominent part in its medical circles. Dr. Lynch was the founder and first president of the Seaboard Medical Association of Virginia and North Carolina. He took a lively interest in military matters and had filled every grade from enlisted man to surgeon-general of Virginia, to which position he was appointed in 1910.

Dr. Lynch is survived by his second wife and a daughter by a former marriage.

Dr. Frank Billings,

Internationally famous surgeon and an ex-president of the American Medical Association, died at his home in Chicago, Ill., September 20th, after an illness of a few days. He was seventy-eight years of age and one of the most outstanding men in the medical profession. He was for a number of years professor of medicine at Rush Medical College of Chicago. Dr. Billings was also much interested in military affairs and gained the rank of Brigadier-General in the U. S. Army. He served with the American Expeditionary Forces in the provost general's office during the World War and in 1918 aided in organizing medical advisory boards for the U. S. Army.